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ON THE

# WIDENING RANGE OF MEDICINE.

*Delivered at the Congress of the American College of Surgeons held at Philadelphia in October, 1925,*

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MR. PRESIDENT.—A double honour is my portion—your fellowship and the delivery of this address—and let me say how deeply I treasure it. If my expression of gratitude is brief, it is out of regard for the many other claims on your attention. I will ask you, then, to liken my appreciation to the small hand of the clock which, though ranging one-twelfth of the distance of the long hand, signifies 12 times as much.

We have just witnessed a short but moving ceremony—the conferring of the Legion of Honour by Dr. de Martel upon Dr. Charles Mayo. The honour and the services of the recipient are alike unique in distinction. To all of our tongue in whatever land they be, this recognition, not only of a great mind but of *a genius for friendship, will bring rejoicing.*

In the choice of a subject suitable to this occasion I was influenced by the knowledge that laymen, both interested and distinguished, would constitute a *portion of the audience; so it occurred to me to present* for your consideration how, on the one hand, medicine is increasing its contact with the sciences, and on the other hand, is extending the range of its influence to cognate activities in the body politic. Medicine has, so to speak, an outer and an inner temple. In the inner temple thought reigns, and in the outer action becomes the handmaid of thought. *During the* twentieth century progress in its sciences has been so notable that medicine has received fresh direction and inspiration. Thought is vivid, new pathways are opening out, and the time is instinct with new unfoldings. And yet we should not forget the debt we owe to the times which have preceded us. It has often been that we have reaped because they have sown, and their achievements measure large when the slenderness of their resources is remembered

century, befogged by fanciful reasoning and fantastic treatment. It could not shake itself free from habits of thought which had their origin far back in primitive beliefs in magic and hostile deities. And in present times so persistent is tradition, the world is still imbued with belief if not in magic yet in the magical, to the detriment of its true interests. To quote Garrod in his eloquent Harveian oration:

> ". . . . The primitive medicine and the art of the medicine man survive to this day among the savage races of the earth, and he would be a bold man who should deny their survival amongst those races which regard themselves as the highest products of civilisation. Are any of us wholly free from such ideas?"

It is difficult for us to convince the public that we have no wonders to offer except those to be found along the narrow and straight path of rational endeavour, and this is especially true in the realm of therapeutics. We in the profession might set example by a more critical examination of our ways and means. We are apt to forget how many of our remedies and formulæ have descended by apostolic succession from previous generations. In order to illustrate, not what our formulæ are but from what they have descended, let me quote you "An Excellent Medicine for the Dropsie made for Queen Elizabeth by Doctor Adrian and Doctor Lacy":

> "Take Polipodium, Spikanard, Squat, Ginger, Markoram, Galingal, Setwel, of each a penny weight, Seina leaves and cods, so much as all the reſt groſly beaten, put them into a bag, and hang it on an earthen pot of two gallons of Ale, and every four dayes cover the pot with new Barm, and drink no other drink for ſix daies, and this ſhall purge all ill humors out of the body, neither will it let the blood putrifie, nor flegme to have domination, nor Choller to burn, nor Melancholly to have exaltation, it doth encreaſe Blood, and helpeth all evill, it helpeth and purgeth Rheum, it defendeth the Stomack, it preſerveth the body and engendereth good colour, comforts the ſight and nouriſheth the Mind."

There are features of this prescription which might make it popular to-day and even in this country! *And yet in that grey light there were glimmers in the* sky. For instance, digitalis was in the Pharmacopœia of 1605. Another example of cycles in knowledge is to be found in the fact that Gairdner recommended iodine for goitre 100 years ago. And that is dwarfed when we learn from Prof. Schmidt that a herb, Ma Huang, containing an active principle similar to adrenalin, was sanctioned by the emperor, Shen Nung, and used over 5000 years ago.

the perversities, of his symptoms, and to either prepare him for operation or even excuse him operation, or guide him to convalescence. Such coöperation with medicine will bring you results hitherto undreamed of. Is it not possible that bio-chemistry helps to measure the physical aspect of individuality? In the days when acute infections played so dramatic a part in life and death amongst peoples, when medical men were so largely occupied with their visitation and impressed with their own relative powerlessness to battle against them, it was only natural that thought should envisage disease more as an evil force from without and set less value on the qualities belonging to the patient.

The banishment of typhoid and other fevers from our midst, the power over the protozoal diseases, the diminishing force of tubercle and syphilis, even acute rheumatism with the damage it inflicts on young life, is less powerful for evil—these and other achievements bear witness to a changing scene.

### THE STUDY OF THE INDIVIDUAL.

The subinfections which play a relatively larger part in the health problems of to-day bring home to us the importance of the individual or host, and the make-up of his body and mind. Their activities in each individual would seem to be determined by some internal factor—some nidus or influence which is probably specific for that person. Thus an attack of rheumatoid arthritis from infected teeth is determined as much by the internal factors individual to that patient as by the infective agent; and not the least suggestive feature of the recent advance in our knowledge of malignant disease from the brilliant researches of Gye and Barnard is the importance of this internal factor in the production of the disease. In short, specificity of the soil looms as large as specificity of the infective agent.

From another point of view this concern of medicine for the individual man—his resistance—his qualities which make for good and for evil, pushes disease back to its beginnings. We thus become concerned with the fascinating though difficult study of trends and tendencies, with the border country between the physiological and pathological, and this leads one to reflect that the limits of the physiological widen with the advance of civilisation. And the body, like the mind, has its inborn traits. Physiological habit corresponds to character. Who is to say where peculiarity ends and fault begins? Advancing age tends to harden peculiarity into fault. Moreover, what we view as peculiarity in ourselves we are apt to term fault in other people. Thus determination becomes obstinacy, and strong will becomes self will, and conviction becomes obsession; and the latter suggests that the philosopher will make his convictions merry, so that his old age may possess content. On the physical side let me instance essential hypertension; no doubt this is sometimes an acquired condition, but equally often it is an inborn, a physiological habit, an over-responsiveness of the vasoconstrictor mechanism which begins as a peculiarity and may end as a fault or disease, commences in the realm of the physiological and ends in that of the pathological. The irritable heart, the over-responsive abdomen are other examples. Our object should be to take cognisance of habits and trends, and so guide their human possessor that his potentialities operate for his good, not for his harm.

### THE RÔLE OF THE FAMILY DOCTOR.

Here, then, there is contact between medicine and education—their spheres overlap, their needful aptitudes resemble. The qualities of mind needed in a diagnostician are as essential to the teacher as the doctor. And from this I am led to reflect that teach- will become a prescribed duty in the doctor's . How can it be otherwise? If we are to get beginnings—if we are to guide people in the f health, if the community guards the health hers, its babies, its school children, its industrial workers, the family doctor must become an educationist and in part a health administrator.[1] If he does not, his rôle will suffer progressive diminution, curtailed as it will be on the one hand by the whole-time health official, and on the other hand by the invading specialist. This will, in my judgment, be a disadvantage to the community. The family has need of its own doctor, known and trusted, and it is with his guidance its members should get all that is best from specialism, and this is the more necessary in a day when specialisation begins early in the doctor's career and is apt to become restricted in vision. The family doctor should remain the foundation of medical service, but his outlook, functions, and training need modification to meet changing needs. First must come his care of the sick, but beyond that he will have communal and educational duties.

Take, for example, the value of medicine towards industry, the physical fitness of the worker, the survey of his environment, the gauging of the suitability of body and temperament to the work required, the strains connected with specialisation, and that new large field of research into the problems of industrial fatigue. In all these things, which concern not only the health and happiness but the efficiency of the worker, medicine has responsibility. Few doctors in a community could fulfil the whole range of such demands. I suggest that in the future the doctors of a district will form themselves into a "faculty" which would place the varieties of knowledge and experience of its members at the service of the community, and in its collective capacity exercise a powerful and much-needed influence on public life.

Withal let us do nothing which would impair the personal touch—the deep and abiding interest which mean so much in the hour of sickness, for our rosary needs to be strung with the beads of love as well as with those of thought.

### THE HOSPITAL: PRESENT AND FUTURE.

How, then, are the members of this local faculty to hold high their standard of work? The answer is, by the hospital. Every district, however rural, should have a hospital adapted to its needs. For myself, I should like to see the conception of such a hospital widened to that of a health centre where curative work, clinic, wards, communal services, educational facilities could find a home, where doctors could improve their minds, give of their best, and find encouragement and restraint. And in this connexion is to be found one of the most beneficent activities of this illustrious College. This larger view of the district hospital carries with it a wider conception of the art of healing. Dietetics, physiotherapy belong as much to education as to healing.

With greater knowledge we have come back to simplicity. The surgeons first found salvation in fire by the discovery of asepsis, and the rest find in air and light a romance of healing. Who would have thought a few years ago that the simplest of hospitals, built on the cattle-byre type, with open air, sun, good food, aided by a knowledge of anatomy and physics as their only armamentarium, would have produced the transformations to be found in modern orthopædic hospitals?

And the beneficial results extend far beyond the patients cured, for each one of the latter becomes a missionary of health—a nuisance to his family, in that he enforces upon its members light and air, to their surprise, discomfort, and salvation. For one cured, many are saved; which dictum is further emphasised in the hygiene of the mouth, for the treatment of oral sepsis has done even more by its terrors than its cures.

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[1] The considerations here set forth are apposite to the misgivings which have found expression in Parliament and the press on the attitude of our General Medical Council towards professional conduct and unqualified practice. Though these misgivings are for the most part based on misapprehension as to what medicine should stand for, they none the less need to be fathomed and adjusted in a large-minded spirit.

### Hormones.

Next, may I let chemistry lead me to another line of thought. The discovery of hormones by Starling gave to chemical products a direct control of function. Consideration of the rôle of these chemical messengers, of which $CO_2$ may be said to be the exemplar, gives us a wider comprehension of the wisdom of the body, and the physical scope of, say, secretin and insulin is within our ken and gives clearness to our conceptions and range to our activities. But that minute quantities of a chemical product, the output of a group of cells, should so far be the arbiter of the physical and mental states of the body that its presence will decide whether the body is to have, or not, vigour and beauty, and the mind power to think and remember, leaves one almost dazed with wonderment. And yet—so it is, as the isolation of the active principle from the thyroid gland exemplifies. Again, it would seem that secondary, and to less extent primary sex characters are the result of chemical substance originating in specialised groups of cells, and such bodies not only determine sex at the outset, but will change sex characters during life's progress; and with the bodily changes will be the corresponding modifications of mind and character, and if one goes one step further and contemplates the beautiful attributes of the mother instinct, which have inspired the art and religion of the world, as resulting from stimulation by a chemical product, are not the limits of our comprehension passed, and our minds unsatisfied? Is the hormone the influence itself or the embodiment of the influence? Or is it the physical counterpart of the spiritual quality of influence? There are, in both, the same qualities of subtle and reiterated effect; in both of them we get a detachment from the material conception of mere bulk and weight and our minds glide back to the "little leaven" and "the grain of mustard seed." The rôle of the infinitely small carries thought to the border country of the material.

### The Place of Psychology in Medicine.

From this it is but an easy step to my next theme—viz., the place of psychology in medicine, which term I take to signify the study of the mind in health and illness. This must claim more of our attention, partly because the knowledge of mind has made striking advance and partly because the need for its help increases. And psychology needs to be taken into the texture of medical practice and not regarded as an extraneous aid. Its delicate processes, requiring as they do insight and sympathy, find encouragement and balance if they are as the warp to the woof of physical symptoms. Standing apart, psychological practice may easily fail in acceptance and purpose and even produce antagonism. This is due in part to the outlook of patients and in part to the crudity of many of its exponents. Broadly speaking, patients regard disturbances of mind as things they can, and disturbances of body as things they cannot, avoid.

Although neurosis is equally if not more prone to attack the higher type of mind, its diagnosis is apt, in spite of every explanation, to debase the patient and prejudice cure. So it happens that the physical and psychical should, wherever possible, be handled together. Priority of presentation should be given the physical, and it should be remembered that the disturbed mind is often helped best by treatment which is incidental and even unwitting. This is only another way of saying that the finer thoughts and feelings may be killed by attempts to give them a too concrete form. And yet, by a strange irony, there is a school of psychological medicine, earnest in advocacy, which has presented us a picture of the human mind and its processes, so crude and unattractive as to prejudice the acceptance of the great and valuable learning on which it is based.

For in truth, medicine owes a great debt to those teachers, Freud and others, who have disclosed to us the workings of the unconscious mind and their relations to those of the conscious. The principles of these teachers are not less true because the latter overstressed the rôle of the sexual instinct, and their disciples have mistaken the wood for the trees. And the conditions of modern life, its speed, its complexities, the fact that mechanical invention has outstripped man's power of adaptation, must not only produce exhaustions but set up strains, conflicts, and make the mind enter more into the make-up of illness than in the placid days of yore. And so it happens that not only do neuroses become more common, but physical illness is apt to be overlaid and inter-threaded with troubled states of mind. Clinical values have changed. And the vagaries in the manifestation of disease which so often vex its unravelling are sometimes the result of mind reactions—of personality.

How often do we not find that an illness with a physical basis which is perhaps amenable best to surgical interference, may have a superstructure of functional disturbances due to present or buried mental experiences, not only perplexing the patient and doctor but prejudicing recovery. Thus is explained why some operations cure the condition but not the patient. It is an interesting reflection that, while on the one hand the technique of diagnosis is growing in range and reliability, on the other hand the problem before it grows in complexity. This tells us that laboratory technique, though essential, is not all-sufficient; it throws light on the morbid process but not on the reaction of the latter with the patient. It leaves individuality untouched, unless, as is possible, variations in biochemical reactions may in the future disclose a correspondence with variations in bodily and mental functions.

### Psycho-Therapy.

I will next refer to the handling of the mind factor in disease. For reasons I have given, the technique of psycho-analysis, suggestion, and hypnotism, though in specially skilled hands and in exceptional cases useful, are in general medicine seldom necessary or desirable. The mind cannot, like the body, always stand set and formal treatment, for the texture and interlacing of the threads of its web are too delicate. Exploratory operations on the mind do not always heal by first intention. The best treatment often lies in comprehensive diagnosis, and by that I mean the unravelling and exposition, not only of the nature of the morbid process, but the physical and mental states associated with it.

Sort out a patient's symptoms for him. It is not things, but the significance of things which matters. Discomforts ignored in health are liable in neurosis to become obtrusive and produce fears. Such may impede the cure of bodily illness; or a function may be raised in consciousness; or again, a conscious experience may be misinterpreted and assume a sinister significance; or again, exhaustion may lessen control so that an instinctive tendency naturally suppressed rises up and produces conflict. Such factors must, in my judgment, contribute increasingly to the make-up of illness and demand our recognition. Explain causes, dissolve doubt, and, side by side with the best physical treatment, restore perspective, and the path to recovery and contentment opens out. An important part of therapeutics is a willingness to listen, a perceptive, understanding mind, and lucid persuasive exposition.

To those who have now been received into your Fellowship may I offer my felicitations and good will. A great heritage and an inspiring outlook are theirs—quest of knowledge, the beauty of craft, the privilege of help and healing, the leadership of their communities towards increasing health and contentment. As between nations medicine stands for reason, bearance, and mercy, and with the English-s peoples it is a beacon light showing the way understanding and the unity of an ever friendship.

## ON SOME
# NEW METHODS, DEVICES, AND APPARATUS
## FOR THE ROUTINE AND THE RESEARCH LABORATORY.

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Of recent years a signal change has come over the spirit of medicine. It is not very long ago since the thoughtful physician believed that the methods of clinical observation and physical exploration would conduct him to his goal, and believed further that it was no part of his office to explore in his patients the biological events which lie outside the ken of our unaided senses. In contrast with his predecessor, the physician of to-day realises that direct observation and physical exploration cannot lead him far, and that he must, for the understanding of his cases, rely very largely upon *laboratory methods*—meaning here by *laboratory methods* all procedures, whether applied in the laboratory or ward, which render manifest things that are imperceptible to our unaided senses.

Medical research has passed through a precisely similar evolution. The earlier research worker was content to restrict his observations to the data furnished by the unaided senses. Pasteur, for example, in his immunisation work, took cognisance only of phenomena such as the survival, sickening, and dying of inoculated animals. In other words, he was content to employ the method of the *saltus empiricus*—the method by which we overleap all intermediate and "*subperceptible*" events to a final result which becomes visible to the eye. Since that the research worker has been learning his lessons. He has learned that only very few problems can be resolved by the method of direct observation. He has learned, further, that problems which have been resolved by this method (let us think here, for instance, of small-pox vaccination) have been only quite superficially resolved. And he has learned, lastly, that the intimate mechanism of things cannot be laid bare except by resort to appropriate laboratory methods.

Herein lies the justification for the publication of new laboratory methods, devices, and apparatus. Inasmuch as it is this latter which must first be taken into account, the description of the procedures in the following will in each case be prefaced by explaining how the necessary apparatus is made.

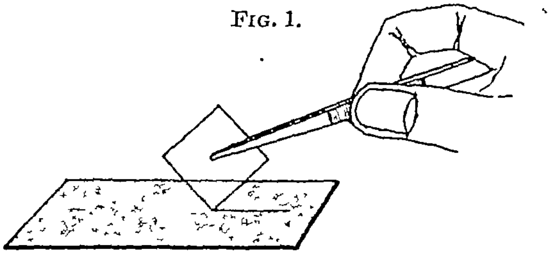
### Cover-glass Cells.

For the proper display and enumeration of such elements as red and white corpuscles, or microbes, or bacterial colonies growing in fluid, we require in each case to have at disposal shallow cells of standard depth. The hæmocytometer, of course, provides such a cell, and so does the slide-cell described in a previous paper.[1] The hæmocytometer has the grave defect of being expensive. Further, in the hæmocytometer cell the depth of fluid cannot be altered to suit different requirements. And, again, the hæmocytometer cell does not lend itself to sterilisation and to conversion into a culture chamber such as is required in connexion with measurements of bactericidal power. The slide-cell, though it provides ideally convenient culture chambers, falls short in the respect that its lid, made as it is of a microscopic slide, does not allow of the examination of the contents of the chambers with high magnifying powers. With a view to remedying these defects of the hæmocytometer and the slide-cell the cover-glass cell was devised. It is designed upon the [illegible] simple principle that a known volume of fluid [illegible] under a cover-glass of known area will, [illegible] of fluid from under the cover-glass is prevented, give a layer of fluid of known and (assuming that the cover-glass and slide are nearly flat) of approximately uniform depth.

### *The Simple Cover-glass Cell.*

Here the escape of fluid from under the cover-glass is prevented by coating the edges of the cover-glass with vaseline. The device for applying the vaseline to the edges of the cover-glass is to place a very small pellet of vaseline upon a slide and then melt this down by heating the glass. While the vaseline is still liquid we grasp a cover-glass in a pair of fine forceps and trundle it upon its edge over the surface of the vaselined slide in the manner indicated in Fig. 1. When a cover-glass thus edged with vaseline is imposed on a drop of fluid we have made what we may call a *simple cover-glass cell.*

Fig. 1.



Showing how the edges of a cover-glass are coated with vaseline by trundling it over the surface of a hot vaseline-covered slide.

### *Hinged and Walled Cover-glass Cell.*

A second form of cell—better in the respect that it can be used both as a counting and a culture chamber—is the following.

*Method of Construction.*—A microscopic slide is carefully cleaned and is passed through the flame to sterilise it. A cover-glass is similarly prepared. The latter is laid down upon the slide. With a soft paint-brush melted vaseline is now painted round its edges, the vaseline being allowed to overlap the edges to the extent of a millimetre or two. One of the corners nearest the worker is left unvaselined to facilitate lifting the cover-glass (Fig. 2, A). We further require to make a hinge upon which the cover-glass can be flapped up and down without lateral dislocation. That hinge is provided by thickening the vaseline rim and allowing it to overlap a little more along the edge which is farthest from us.

When the time comes for filling the cell a thin knife blade is inserted under the bare corner of the cover-glass lid, and this is lifted up until it stands upright upon the hinge that has been constructed (Fig. 2, B). The prearranged volume of fluid is then filled in from a pipette which has either been paraffined at the tip or has been drawn out into a fine point. If the fluid in question is blood, or any suspension in which the solid particles bulk as largely as they do in blood, not less than 30 c.mm. should be filled into the ⅞-inch cover-glass cell, so as to provide a sufficient depth of fluid, and the fluid should be deposited, not as a solid drop in the middle of the floor, but in the form of a ridge running out at right angles from the middle of the hinge. If these precautions are observed and the cover-glass lid is let down very slowly upon the fluid, an uneven distribution of the corpuscles or other suspended material will be avoided. When the cover-glass has been let down upon its bed the cell is sealed up by painting additional vaseline round its edges (Fig. 2, C) We may call the sort of cells we have been here speaking of *hinged and walled cover-glass cells.*

*The simple cover-glass cells* may be employed as *counting chambers* for the enumeration of red and white corpuscles or bacteria.

*The hinged and walled cells* are used: (*a*) As *bacterial culture chambers.* Such chambers find useful application: (*a*) when we want to count the living, as distinguished from the total bacterial content of a culture, or to count the living microbes in a quantum of culture used for a bactericidal experiment; (b) where we want to discover whether a particular microbe can cultivate itself in blood or any other medium; or to determine whether an addition, and if so, what addition, of a vaccine or other chemical agent will impede or abolish such growth.

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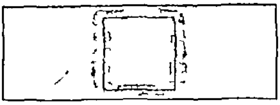
[1] The Lancet, 1923, i., 365.

FIG. 2, A.

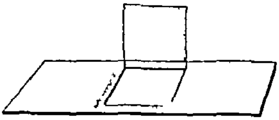


Vaseline hinged and walled cover-glass cell. The cell before opening.

(b) As *emigration chambers*—for the procuring of cover-glasses carpeted with, or of cells covered roof and floor with, leucocytes obtained direct from the blood

The methods of employing the cover-glass cell for these several purposes may now be very briefly described.

FIG. 2, B.

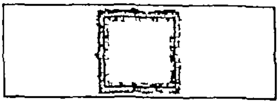


The cell opened for filling, showing the cover-glass standing upright upon the vaseline hinge

*Enumeration of the Red and White Corpuscles.*

(1) Blood suitably diluted with 8 per cent. magnesium sulphate coloured with methyl violet is introduced into the cell in the manner previously described. The appropriate magnesium solution is a saturated solution five-fold diluted to which about one-tenth of a 1 per cent. solution of methyl violet in water has been added. For counting leucocytes a dilution of 1 in 50 of blood and for red corpuscles one of 1 in 500 will give convenient counts. These dilutions are made on a paraffined slide with a paraffin-tipped pipette in the manner described in the author's "Technique of the Teat and Capillary Tube."[1] A suitable cover-glass to use is one 20 mm. (¾ inch) square—i.e., one with a superficial area of 400 sq. mm. Forty c.mm.

FIG. 2, C.



The cell reclosed after filling

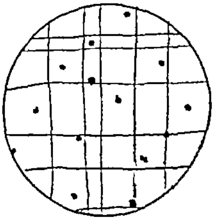
area), 0·1 mm. *Volume of diluted blood in the field of the microscope*, 0·05 c.mm. *Volume of undiluted blood in the field of the microscope* (assuming the blood to have been diluted 50-fold), 0·001 c.mm. And now, assuming that the average number of leucocytes per field had worked out as 7, the figure for the number of leucocytes in 1 c.mm. of blood would work out as 7000.

The method of calculation is similar for a red corpuscle count, except that here allowance must be made for the ten-fold greater dilution of the blood. When the cell is used for the enumeration of the microbes the procedure is similar to that used for counting corpuscles.

PROCEDURE FOR THE ENUMERATION OF MICROBES.

(2) Progressive dilutions of the culture are made (salt solution, broth or diluted serum being used as the diluent) and then the most suitable dilution (it will be one which furnishes only a very few microbes in the field of the oil-immersion field) is chosen for enumeration. Certain special difficulties, however, present themselves when we try to focus down upon small unstained objects when present in only very small numbers in a water-clear medium. Let us carry in mind here that we have in the oil immersion lens the equivalent of an extremely myopic eye which possesses only a very shallow depth of focus. Further, let us reflect that when we are focusing down upon a preparation such as we have here in view *there is nothing to give* us warning (unless by special providence a microbe happens to be in the exact axis of vision, and that does not [illegible] an adequate warning); there is nothing, I [illegible] to notify us of our having arrived at the upper limiting plane of our fluid, and again nothing to give us warning of our having arrived at the bottom of our layer of fluid. In default of such guidance we are liable to focus either too high or too low, and focusing too high means failing to see [illegible] objects, and *focusing too low* [illegible] our

FIG. 3.



Microbic colonies in the field of the microscope, enclosed between two systems of striæ—the vertical striæ between the lower face of the cover-glass and the horizontal on the upper surface of the slide.

edges of the papers upon the slide in such a manner as to impregnate these edges with paraffin. The border of paraffin which is in this way obtained serves to keep the blood when this is imposed upon the filter discs or squares from running off upon a subjacent surface. Our paraffin-framed discs or squares are now transferred to a sterile sheet of filter paper which is destined to supply the aspirating force required for our filtering operations. Everything being now prepared, we impose defibrinated blood upon our filters heaping it up upon them, and we now take care to bring the upper and lower filter papers into closer application so as to start the filtration In filtering care must, of course, be taken to prevent any portion of the filter running dry.

That a filter paper which has served for the filtration of blood contains in its superficial layers practically all the leucocytes of the blood, and in its deeper layers practically no leucocytes can be very easily demonstrated. We can satisfy ourselves of this by taking such a filter paper, treating it with water until all the hæmoglobin has been dissolved out, staining with logwood, mounting in balsam, and examining under an oil-immersion lens.

For the purpose of a comparative bactericidal test we prepare two such discs (Discs Nos. 1 and 2), also soak another precisely similar disc in serum (Disc No. 3), and then take a Petri dish containing nutrient agar, the surface of which has been evenly implanted with staphylococci. Then we place Disc No. 1 upper face downwards upon the agar; Disc No. 2 lower face downwards; and Disc No. 3 any way that it happens to come, and then cultivate at 37° C. for 24 hours. By that time all the microbes which have escaped destruction will have grown out into colonies, and will have invaded the substance of the filter paper discs, and inspection of these, beginning with the last and ending with the first mentioned, will show (1) that the serum has exerted no bactericidal power, (2) that the hypo-leucocyted blood has exerted very little bactericidal effect, and (3) that the hyper-leucocyted blood has exerted a very great deal Permanent show specimens can now be prepared by first soaking the filter papers in water, then staining by Gram's method, and then mounting in Canada balsam (Fig. 4).

### THE VAGINAL PIPETTE.

The vaginal pipette serves for evacuating the contents of lengths of capillary tube which are unprovided with mouthpieces—for example, stems of capillary pipettes which have been cut off from their butt ends.

The principle upon which the pipette is constructed will be understood from the description of the method of making such a pipette. We take a capillary pipette with tapering stem, and cut this down to a length of about 3 inches, and then again cut it across just below the neck of the pipette. We then coat the middle of the truncated stem somewhat heavily with sealing-wax, and heating the neck of the butt end in the flame we bring it down over what was previously the distal extremity of the capillary tube until it meets the sealing-wax. This lutes the two tubes together, giving us an inner tube with a trumpet-like aperture and a tapering upper end, and an outer tube upon which we can fit a rubber teat. When we now introduce into the pipette's trumpet-shaped mouth the tapering end of any open capillary stem, and push it home until grasped by the contracting walls of the tube, we obtain a practically air-tight joint (Fig. 5). When such an air tight joint has been obtained pressure on the teat will expel the contents.

This description of the vaginal pipette may conveniently introduce an account of procedures in which it finds useful application. The first of these is a *Simplification of the Procedure for M*

Capillary Tube" in the respect that after the phagocytic mixtures have been made and filled into the capillary pipettes and the tips of these have been sealed, the stems are cut off from the butt ends and are then immediately or after a very short incubation in the water-bath centrifuged. After a centrifugalisation, which may last on the average some 45 seconds, the tips of the pipettes are cut off, the contents are expelled and mixed by the aid of the vaginal pipette, and films are made in the customary manner. In a future communication the details and the advantages of this procedure will be fully described.

### *Simplification of the Method of Measuring the Coagulation Time of the Blood.*

The method here to be described is a simplification of the methods described in the first and second

FIG. 5.

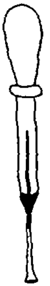


FIG 5.—Vaginal pipette.

FIG. 6.

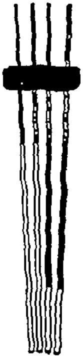


FIG 6.—Coagulation tubes fixed on a roll of plasticine. The left-hand two are depicted empty except for the paraffin lining in their upper tapering ends. The right hand two are shown with the columns of blood in position.

# IRRADIATION OF FOODSTUFFS WITH ULTRA-VIOLET LIGHT.

## A CLINICAL INVESTIGATION OF THE CURATIVE VALUE OF IRRADIATED FOOD IN RICKETS.*

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ONE of the most interesting recent developments in medicine is the scientific study of the effects of light on the organism, its mode of action, and its therapeutic value in disease. The striking increase in well-being so frequently obtained from light treatment in this country appears to justify the conclusion that large numbers of city dwellers suffer from too little exposure to light, and that for this reason artificial light therapy has a wide sphere of usefulness. Its romance has caught the imagination of the public, a fact with attendant advantages and disadvantages, since on the one hand all have now heard of its value, and on the other there is the likelihood of exaggerated hopes leading to a reaction.

In artificial light therapy we are as yet only feeling our way, working empirically, with no clear idea of the relative value of different rays under different conditions, of the best dosage, or of how to grade it. The subject, too, is complicated by such phenomena as the interference of one group of rays with the effects of another.[1] Bit by bit, however, scientific knowledge is accumulating which will allow of a better understanding of the physiological effects of light. Two diseases—rickets and infantile tetany—are known to be directly associated with insufficient exposure to light, and consequently these lend themselves to investigation in connexion with light treatment—the former much more readily than the latter as its progress can be studied and demonstrated with the aid of the X ray plate; but knowledge developed in connexion with rickets will probably help our understanding of the mode of action of light in other conditions.

### *Therapeutic Effects Common to Cod-liver Oil and Ultra-violet Light.*

For some time interest has been aroused by the curiously parallel action of light and cod-liver oil (containing the so-called antirachitic factor) in relation to calcium and phosphorus metabolism. Either will cure the bone lesions of rickets [2] and will prevent the development of rickets on a rachitic diet,[3] either will increase the availability (probably by increasing absorption from the intestine [4]) of calcium and phosphorus in the diet, making a very small quantity adequate for the needs of the organism, and either will bring about the gradual rise to normal of a low blood phosphorus or blood calcium.[5] Both cod-liver oil and light therapy will induce growth in a rat given a diet deficient in the fat-soluble vitamins (A factor and antirachitic factor), but the duration of growth differs. If cod-liver oil containing these factors is added to the diet growth *continues* normally, but the growth caused by exposure to light is only temporary. After an interval—i.e., probably when the supply of vitamin A (in contradistinction to the antirachitic factor) in the rat's body is exhausted—the animal rapidly develops xerophthalmia and loses weight.[6] On the other hand, a rat on a "rachitic diet" can be protected ap[illegible]ly indefinitely against rickets by exposure to adequate light, a fact which appears to indicate that the action of light and of cod-liver oil are only interchangeable as regards the antirachitic factor and not the A factor.

### *The Activation of Lipoids by Light: Animal Experiments.*

Steenbock and Black [7] and Hess [8] were the first to correlate these facts, though many investigators are now working in this field. Steenbock and Black found that the presence of irradiated rats favourably influenced the growth of non-irradiated animals living in the same cage when all were on the same diet—namely, one deficient in the antirachitic factor. They suspected emanations of some sort from the radiated rats, especially since they found that an irradiated cage bottom exerted a similar beneficial effect. They worked with insulators, conductors, various metals enclosed in quartz flasks or exposed direct to the rats in their efforts to discover the nature of this emanation,[9] and finally the true explanation dawned on them and was confirmed by experiment. Exposure to ultra-violet light endowed certain foodstuffs with antirachitic properties. By irradiation of the cage bottom traces of fæcal contamination were rendered antirachitic, and these were consumed by the rats in the process of their toilet. Irradiation of the rats' total ration or of muscle, liver,[7] or vegetable oils [10] induced antirachitic properties in these substances, as evidenced by experimental work. Here, then, was part of the explanation of the identical antirachitic power of cod-liver oil and of light; the antirachitic factor which is present in cod-liver oil can be produced under the influence of ultra-violet light either in the living organism or in its foodstuffs. But so far it was not clear whether this "antirachitic factor" was a chemical entity or a form of radiant energy. Kugelmass's and McQuarrie's work,[11] suggesting that ultra-violet rays were given off by certain antirachitic substances when oxidised, has not been confirmed by other workers.[12] Now the explanation has been carried a step further. Under the influence of light two chemically pure substances, cholesterol obtained from animals and phytosterol obtained from plants, have been shown to acquire antirachitic properties,[13] and in the process cholesterol is changed in chemical constitution—in colour,[14] melting point,[15] and in its spectrum.[16] Moreover, the skin of an irradiated animal has antirachitic properties when fed to a rat on a rachitic diet.[14] Now the skin contains cholesterol (an alcohol). Cholesterol esters, formed from cholesterol and the fatty acids, are the main constituents of the secretion of the sebaceous glands. Presumably, therefore, both in the living animal exposed to ultra-violet light and in antirachitic foodstuffs, the antirachitic property resides in the cholesterol or phytosterol and possibly in other similar substances, and the animal is able to use this activated lipoid, whether it is supplied via the skin or the alimentary tract. Hess and Weinstock have demonstrated the antirachitic power of cholesterol when injected subcutaneously.[17] Ultra-violet light would seem to have no power of causing the development of fat-soluble A in the body, but only of the antirachitic factor; hence, irradiated rats given a diet deficient both in the antirachitic factor and in vitamin A only grew until their progress was arrested by the shortage of vitamin A.

### *The Authors' Observations.*

Until August, 1925, little work on the effects on man of irradiated foodstuffs had been published. Cowell [18] states that the bone lesions of two children receiving irradiated cow's milk healed more quickly than those of his control on non-irradiated milk. Steenbock and Daniels favourably influenced the calcium balance of two apparently healthy infants by giving irradiated olive oil,[19] and Hess tested on rachitic children irradiated carrots, spinach, and dried milk, but gives few details.[11] During August, however, there appeared a paper by Kramer, who showed by means of X ray photographs and examination of the blood the curative value of irradiated cow's milk on eight young children.[18]

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* [illegible] communication was made at the meeting [illegible] Medical Association in July, 1925.

From February till July, 1925, the writers have been investigating the clinical value in the treatment of rachitic children of certain irradiated foodstuffs. The children under observation were in-patients at the Queen's Hospital for Children. All were in the same ward, which is well lighted by windows facing north and south and is well ventilated. Their ages varied from 7 months to 3½ years, and the chief facts concerning each child are summarised in the accompanying table. The diet in the main was the ordinary hospital one and varied according to the age and weight of the individual. Each child received a liberal allowance daily of full-cream dried milk (a spray process milk, Trumilk, was used); 3½ to 5 oz. were given, being equivalent to approximately eight times that amount of fluid milk. The diets were as follows:

*Diet A.*—Meat, soup, vegetables, pudding as ordinarily supplied from the hospital kitchen, bread, butter, jam, and fruit, with 3½ oz. of dried milk daily.

*Diet B.*—Soup, milk pudding, bread and butter, and 5 oz. of dried milk daily.

*Diet C.*—Dried milk, varying in quantity with the size and age of the child, sugar, and fruit juice.

The source of ultra-violet light was a mercury arc (mercury-vapour quartz lamp) of the Hanau type, made by the Hewittic Electrical Company, a vacuum lamp with a metal reflector, and a burner voltage of 140 (supply current 210 volts). In each case the food to be irradiated (24 hours supply) was placed for one hour under the lamp in a thin layer at a foot distance from the burner.

### *Results Obtained.*

1. *Control Observations.*—Throughout the period of observation there were children in the wards on the same diets, but having no part of their food irradiated; six such cases were under observation for periods of five weeks upwards. One child (Case 9, A. K., aged 3½ years) was admitted in June with the rachitic lesions already healing, and they continued to heal after admission. This case, therefore, should be excluded from the series, leaving five controls. None of these showed radiographic evidence of healing without specific antirachitic treatment (see Cases 4–8 inclusive; Case 8 is discussed in paragraph 5 below).

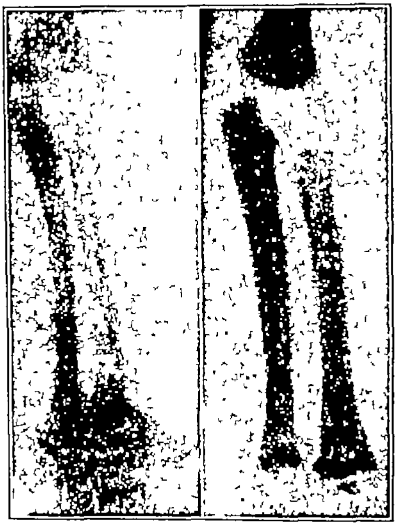
2. *Cases Treated with Irradiated Dried Milk (Rickets and Spasmophilia).*—Three children received irradiated dried milk, 3½ to 5 oz. daily. In one, the eldest, aged 3½ years (Case 1, J. E.), the milk formed only part of a mixed diet, which included meat and vegetables. All three children showed radiographic evidence of healing between the fifteenth and twenty-second day after treatment was begun (the photographs were taken at approximately weekly intervals), and in all there was steady progress in calcification. This was at a rate comparable to that usually obtained by direct exposure of the child to the light of the lamp or by administration of cod liver oil by mouth. Moreover, in one child suffering from spasmophilia (infantile tetany) the condition was cured as it would be by direct radiation. This case is one of special interest. The child (Case 2, J. L., aged 7 months) had, on admission, frequent laryngeal stridor and a well marked Chvostek reaction (contraction of facial muscles obtained by tapping the side of the face over the branches of the facial nerve). He developed pneumonia on the eighth day after admission, but this acute illness did not interfere with the cure of either his rickets or tetany. Craniotabes, which had been fairly extensive, had nearly disappeared by the seventeenth day, and all clinical evidence of spasmophilia by the eleventh to twelfth day.

3. *Cases Treated with Irradiated Dried Milk which was Subsequently Boiled.*—In order to test whether or not the antirachitic property induced by light in the milk would withstand the effects of cooking, two children were given irradiated dried milk, which, after being mixed with water, was simmered over a gas flame, the temperature being kept at boiling-point for ten minutes. Both these children (Case 4, F. B., aged 8 months, and Case 5, J. H., aged 18 months) (see Fig. 1) had undergone a preliminary control period during which there was no evidence of healing. The X ray plate showed the first signs of healing on the seventeenth and nineteenth day respectively after the boiled irradiated milk was first given. The antirachitic property thus induced will, therefore, withstand the effects of boiling.

4. *Case Treated with Irradiated Sweetened Condensed Milk.*—One child (Case 6, D. R., aged 18 months) (see Fig. 2) with severe rickets, as shown radiographically, received, after a preliminary control period, 5 oz. of irradiated full-cream sweetened condensed milk (Nestlé's) in place of dried milk. The same rapid calcification was brought about as in the five cases already described.

5. *Cases Treated with Irradiated White Flour.*—The results obtained with irradiated, white, wheaten flour were inconclusive, probably negative. The flour after irradiation was given uncooked, mixed with soup, gravy, or minced meat. It was well taken and evidently digested, since the stools showed few starch granules. E. M. (Case 7, aged 1 year 10 months) received 3 oz. daily with no evidence of healing. She was then given outdoor treatment and cod liver oil by mouth, and healing was apparent in 20 days. The other case (Case 8, V. O., aged 1 year 10 months) was admitted on Feb. 4th. On March 11th the child had a single exposure to the light of the mercury arc, and eight days later there was radiographic evidence of healing. This slight calcification appeared unusually early, but the after-history supports, though it does not prove, the view that it was due to the exposure to the mercury arc. From March 26th to June 18th the child was given 3 oz. of irradiated flour daily, but after very slow progress for about a month showed little or no advance in calcification, until given outdoor treatment in June. There seems no doubt that the antirachitic power induced in the flour was feeble, if present at all.

FIG. 1. (*Case 5.*)



Moderate rickets—active. Radiogram taken April 8th, 1925.

Bone lesions healed after 3 months' treatment with irradiated dried milk which had been boiled for 10 minutes after irradiation. Radiogram taken Sept. 7th, 1925

6. *Case Treated with Irradiated Cotton-seed Oil.*—Only one in-patient (Case 10, F. S., aged 15 months) received irradiated cotton-seed oil. He was given on the first day 1½ drachms, increasing by the seventh day to 6 drachms daily, the amount being given in three doses. Healing was apparent on the thirty ninth day and progress in calcification was slow. Six drachms must be considered near the limit of tolerance for a young child, since this amount set up diarrhœa in several out-patient children receiving it. Taking this case in conjunction with the out-patients under observation, it is safe to say that the irradiated cotton-seed

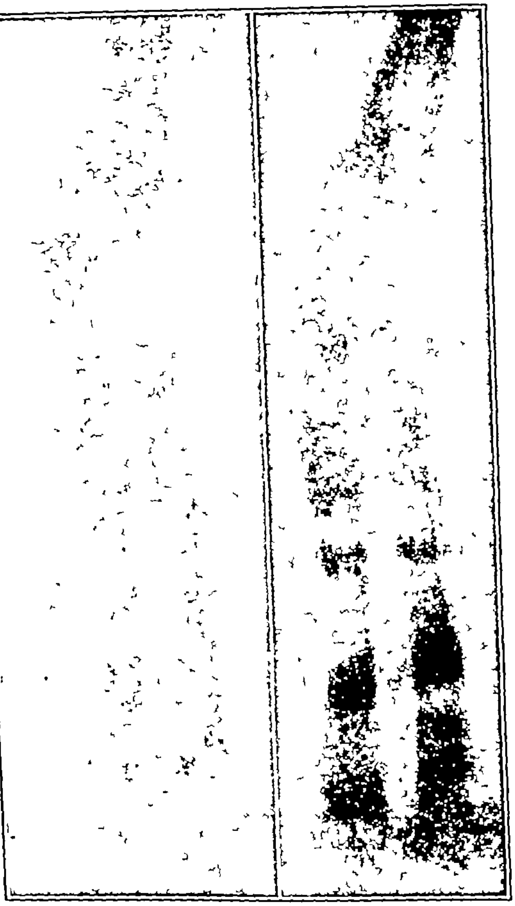
rtainly had not the potency of an average sample of d-liver oil, but it would seem probable that 6 drachms ercised some curative effect, though more observations in-patients would be necessary to establish this point.

*Comments.*

Experiments on rats have shown that both white our and cotton-seed oil *can* be activated by irradiation nd that a very small quantity (0·1 c.cm.) of the latter will exert a protective influence on rats on a rachitic diet.[20] The failure to obtain similar results with children may be due to the fact that the substances in the quantities given were ineffective, or only slightly effective, or that we overshot the mark by too prolonged irradiation. It has been shown that ultra-violet light first activates olive oil (half to five hours' exposure) but that prolonged exposure (e.g., ten hours) destroys this antirachitic power.[21] A similar effect has been obtained by Hess with pure cholesterol[14] which he found inert after four hours' exposure to the mercury arc, and prolonged exposure (17 hours) has rendered cod-liver oil inactive.[21] On the other hand, Steenbock and Black found cholesterol still active after 17 hours' exposure to the mercury arc,[21] a fact probably to be explained by the varying in of the lamps used. Hess states that two ure to the mercury arc at one foot tivated linseed oil.[20]

ossible to say from the small number of eated whether the improvement in the general health obtained by giving irradiated milk is comparable with that obtained by giving artificial light treatment or only with that obtained by the administration of cod-liver oil, for in cases of rickets the effect of a therapeutic agent on the general health and on calcium metabolism does not necessarily show a parallel course. Light therapy usually improves the child's activity, muscle tone, and general contentment, in addition to bringing about normal calcium metabolism; whereas cod-liver oil administration brings about normal calcium metabolism, but has much less effect on the general health. Conversely improvement of the general health is not necessarily accompanied by healing of the bone lesions.

FIG. 2. (*Case 6.*)



Severe active rickets. Radiogram taken July 15th, 1925. Bones were unchanged after 2 months' in hospital, in spite of good general progress.

Bone lesions nearly healed after 2 months' treatment with irradiated sweetened condensed milk. Radiogram taken Sept. 7th, 1925.

It would, however, seem reasonable to suppose that the effect in rickets of foodstuffs artificially rendered antirachitic by ultra-violet radiation would be identical with that of naturally occurring antirachitic substances, such as cod-liver oil. It is clear that many of the physiological effects of light—for instance, erythema of the skin and pigmentation, to take the most obvious examples—cannot be brought about by a foodstuff endowed with antirachitic properties.

*Summary of Results.*

Observations were carried out on the effect on rachitic children of foodstuffs irradiated for one hour at one foot distance from a mercury arc; 24 hours supply was radiated daily. Weekly X ray photographs were taken of the long bones of the children and the results were based on changes in the rachitic bone lesions as shown by the X ray plate.

(*a*) Five control cases not healing on admission showed no healing without specific antirachitic treatment. All were given full-cream dried milk.

(*b*) The following cases showed calcification of the bones at a rate comparable to that usually obtained by direct radiation or by the administration of cod-liver oil: Three children given 3½ to 5 oz. of irradiated full-cream dried milk. One child given irradiated sweetened condensed milk. Two children given irradiated dried milk which had been boiled for ten minutes after irradiation.

(*c*) Two children were given 3 oz. of irradiated white flour. One gave a negative result, the other result was inconclusive, probably negative.

(*d*) One child was given 6 drachms of irradiated cotton-seed oil. There was very slow healing of the bone lesions.

(*e*) One child suffering from infantile tetany was cured by irradiated dried milk.

*The Future Value of Irradiated Foodstuffs.*

Animal experiments have shown that two minutes' irradiation will activate linseed oil,[20] and that irradiated olive oil can be kept for at least a period of ten months,[11] and linseed oil six months,[20] and still possess antirachitic power. There is little doubt that when it becomes possible certain foodstuffs will be irradiated on a commercial scale. This cannot be done at present as, in order to prevent undesirable exploitation, the process has been protected by a patent, as was done in the case of insulin. Among the substances activated in greater or less degree by different workers are muscle, liver, skin, milk, butter, lard, egg yolk, crude casein, yeast, a variety of vegetable oils, including olive oil, coconut oil, cotton-seed oil, linseed oil, and corn oil, as well as various cereal substances, including wheat, wheat flour, Indian corn, corn starch, and rolled oats. It is obvious that only foodstuffs with keeping properties are likely to be treated on a large scale. The use of these by the greater public will depend largely on their price, and, for all but infants, on their taste. Few adults like the taste of dried milk, and, in the writers' opinion, irradiation for an hour makes it less palatable. The taste is changed even after two minutes' exposure at one foot from the mercury arc. If such a very short exposure will activate foodstuffs, the cost should not prove an obstacle. For premature infants and for those of poor digestive power it would be an undoubted

### SUMMARY OF CASES TREATED WITH IRRADIATED FOODSTUFFS.

| Case. | Age on admission (years). | Diet. | Control period in 1925. | Date treatment begun. | Nature of treatment. | Date radiographic healing observed. | General health. | Bone lesions as shown radiographically. |
|---|---|---|---|---|---|---|---|---|
| 1 J. E. | $3\frac{1}{12}$ | A | 28/1 to 13/2 | 13/2 | Irrad. dried milk. 3½ oz. daily. | 28/2 (15th day) | Feeble and flabby on admis. Just able to sit up. Marked kyphosis. Massage; improved greatly. Gained 3½ lb. in 2½ months. | Severe rickets. Good progress. Discharged healed in 2½ m. |
| 2 J. L. | $\frac{7}{12}$ | C | — | 17/3 | Irrad. dried milk. 4½ oz. daily. | 7/4 (22nd day) | Admitted with spasmophilia (laryngeal stridor) and craniotabes. Pneumonia 3 days later. No stridor or Chvostek after 11th to 12th day. Good gen. progress. Gained 1½ lb. in 1½ m. Craniotabes nearly disappeared by 17th day. | Mod. rickets on admis. Nearly healed in 6 weeks. |
| 3 W. S. | $\frac{9}{12}$ | B | — | 17/2 | Irrad. dried milk. 5 oz. daily. | 5/3 (17th day) | Under weight; gen. condition good. Gained 1½ lb. in 1½ m. | Slight rickets, nearly healed in 30 days. |
| 4 F. B. | $\frac{6}{12}$ | C | 21/3 to 5/5 | 5/5 | Boiled irrad. dried milk 4½ oz. daily. | 21/5 (17th day) | Pale child. Poor gen. progress in hosp. | Very slight rickets. |
| 5 J. H. | $1\frac{4}{12}$ | B | 13/4 to 5/6 | 5/6 | Boiled irrad. dried milk 5 oz. daily. | 23/6 (18th day) | Small, fat, rather flabby on admis. Satisfactory progress. Gained 3 lb. in 3½ m. (1½ lb. in 1½ m. control period). | Mod. rickets. Good progress with treatment. Nearly healed in 2 m. (See Fig. 1.) |
| 6 D. R. | $1\frac{6}{12}$ | B | 14/5 to 7/7 | 7/7 | Irrad. sweetened condensed milk. 5 fluid oz. daily. | 28/7 (21st day) | Small, but gen. condition fairly good on admis. Gained 2½ lb. in 3 m. (1½ lb. in 1½ m. control period.) | Severe rickets. Good progress with treatment. Nearly healed in 2 m. (See Fig. 2.) |
| 7 E. M. | $1\frac{10}{12}$ | B | 11/3 to 8/5 | 8/5<br>18/6 | Irrad. flour 3 oz. daily. Outdoor and cod-liver oil. | No healing<br>7/7 (20th day) | Fair condition on admis. Gained nearly 1 lb. control period. No gain in weight while having irrad. flour. | Slight rickets. No healing with irrad. flour for 42 days. Advanced healing after 4½ weeks' treatment with sunshine and cod-liver oil. |
| 8 V. C. | $1\frac{10}{12}$ | A | 4/2 to 11/3 | 11/3<br>20/3<br>18/6 | Single exposure to light of mercury arc.<br>Irrad. flour 3 oz. daily. Outdoor. | 18/3 (8th day) | Small, but well nourished on admis. Poor gain in weight in hosp. | Mod. rickets. 4/2 to 11/3, no healing. 18/3 to 28/4, very slow progress. 28/4 to 1/7, stationary. 15/7, advanced healing (1 m. out of doors). |
| 9 A. K. | $3\frac{6}{12}$ | A | 3/6 to 2/7 | 2/7 | Outdoor. | Healing on admis. | Small and backward, but well nourished and good colour. Gained 3 lb. in 1½ m. in hosp. | Severe rickets. Steady progress. |
| 10 F. S. | $1\frac{9}{12}$ | B | — | 21/1 | Irrad. cotton-seed oil 1½ dr. increasing to 6 dr. daily by 7th day. | 2/3 (39th day) | Fat, flabby child. Gained 3½ lb. in 2 m. in hosp. | Slight rickets. Slow progress. Nearly healed after 2 m. treatment. |

advantage to be able to give a milk preparation of good antirachitic potency. At present it is certainly desirable to give every artificially fed infant and many breast-fed infants cod-liver oil daily all through the winter, since ordinary foodstuffs, even breast milk, will not ensure protection to an infant living an indoor life and consequently getting very little ultra-violet light.[22] An inexpensive antirachitic dried milk would have obvious advantages over daily cod-liver oil medication. Its use would, generally speaking, be required only in winter, since in London, for example, it is our experience that it is rare to find a case of active rickets in the late summer on any diet, as by that season increased exposure to light out of doors has established the normal process of calcification of the bones.

The authors, in conclusion, would like to place on record their gratitude for the constant help and coöperation they have received from colleagues in both the medical and nursing professions. Their particular and very sincere thanks are due to Sister F. Francis, who was responsible for the entire series of X ray photographs, to the ward sister, Sister D. I. Hook, and to Sister M. W. Westbrook, who daily carried out the irradiation of the foodstuffs.

### *References.*

1. Hess, A. F., and Weinstock, M.: Jour. Amer. Med. Assoc., 1923, lxxx., 687.
2. (a) Huldschinsky, K.: Deutsch. med. Woch., 1919, xlv., 712. (b) Howland, J., and Park, E. A.: Bull. Johns Hopkins Hosp., 1921, xxxii., 314. (c) Studies of Rickets in Vienna, 1919–1922, Med. Research Council Spec. Report Series, No. 77, 1923, p. 70.
3. (a) Ibid., p. 44. (b) Hess, A. F., Unger, L. J., and Pappenheimer, A. W.: Proc. Soc. Exper. Biol. and Med., 1921, xix., 8; Jour. Exper. Med., 1922, xxxvi., 427. (c) McCollum, E. V., Simmonds, N., Powers, G. F., Park, E. A., and Shipley, P. G.: Jour. Amer. Med. Assoc., 1922, lxxviii., 159, and Johns Hopkins Hosp. Bull., 1922, xxxiii., 125.
4. Telfer, S. V.: Quart. Jour. Med., 1922, xvi., 63.
5. (a) Hess, A. F., and Gutman, M. B.: Jour. Amer. Med. Assoc., 1922, lxxviii., 29. (b) Kramer, B., Casparis, H., and Howland, J.: Amer. Jour. Dis. Child., 1922, xxiv., 20. (c) Casparis, H., and Kramer, B.: Bull. Johns Hopkins Hosp., 1923, xxxiv., 219. (d) Howland, J., and Kramer, B.: Amer. Jour. Dis. Child., 1921, xxii., 105.
6. (a) Goldblatt, H., and Soames, K. M.: THE LANCET, 1922, ii., 1321. (b) Hume, E. M.: Ibid., p. 1318.
7. Steenbock, H., and Black, A.: Jour. Biol. Chem., 1924, lxi., 405.
8. Hess, A. F.: Science, 1924, lx., 269.
9. Nelson, E. M., and Steenbock, H.: Jour. Biol. Chem., 1925, lxii., 575.
10. Hess, A. F., and Weinstock, M.: Amer. Jour. Dis. Child., 1924, xxviii., 517.
11. Kugelmass, I. N., and McQuarrie, I.: Science, 1924, lx., 272.
12. (a) Webster, A., and Hill, L.: Brit. Med. Jour., 1925, i., 956. (b) Schultz, F. W., and Morse, M.: Amer. Jour. Dis. Child., 1925, xxx., 199.
13. Steenbock, H., and Daniels, A. L.: Jour. Amer. Med. Assoc., 1925, lxxxiv., 1093.
14. Hess, A. F.: Ibid., p. 1910.
15. Rosenheim, O., and Webster, T. A.: THE LANCET, 1925, i., 1025.
16. Hess, A. F., and Weinstock, M.: Jour. Biol. Chem., 1925, lxiv., 193.
17. Ibid., p. 181.
18. Cowell, S. J.: Brit. Med. Jour., 1925, i., 594.
19. Kramer, B.: Amer. Jour. Dis. Child., 1925, xxx., 195.
20. Hess, A. F., and Weinstock, M.: Jour. Biol. Chem., 1925, lxiii., 297.
21. Steenbock, H., and Black, A., and others: Ibid., 1925, lxiv., 263.
22. Studies of Rickets in Vienna, 1919–1922, Med. Research Council Spec. Report Series, No. 77, 1923, p. 126.

# ULTRA-VIOLET IRRADIATION IN THE ACTIVATION OF CHOLESTEROL AND FOODS.

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IT is thoroughly established that animals as well as infants can be protected from rickets by means of the ultra-violet rays from the sun or mercury-vapour or carbon-arc lamps. It has been shown also by several investigators that under certain conditions growth can be brought about in animals by subjecting them to these rays. A year or more ago Hume and Smith[1] reported that they were able to stimulate growth by keeping rats in an atmosphere which had been irradiated with ultra-violet rays. These experiments, however, have not been corroborated. Webster and Hill,[2] in a paper entitled the Supposed Influence of Irradiated Air on Growth, recently reported negative results. This likewise was our experience in tests of this kind carried out about two years ago.

### *Effect of Irradiation of Inert Oils.*

In view of the remarkable effect of the solar rays on vegetable life, it occurred to us to ascertain whether the irradiation of inert vegetable substances could endow them with antirachitic properties. With this end in view, we irradiated various fluids with the ultra-violet light from a mercury-vapour quartz lamp. In June, 1924, we communicated to the American Pediatric Society[3] a preliminary report of these experiments, which may be summed up by the statement that vegetable oils which are ordinarily inert were found to have developed marked antirachitic activity following irradiation. The oil used in these experiments were cotton-seed and linseed oils, which were exposed in Petri dishes in very thin layers. Soon after this communication Steenbock and Black[4] reported similar results with irradiation of various foods. More recently these experiments have been corroborated by Webster and Hill.[5]

During the past year this work has been continued and extended in various directions.[6] It was found that the irradiated vegetable oils maintained this acquired potency for a very long period. Recently we tested cotton-seed oil that had been irradiated one year ago and kept ever since under ordinary conditions in a stoppered bottle, and found that 0·1 c.cm. sufficed to protect rats which were placed on a stringent rickets-producing diet. Growing wheat, whether green or ætiolated, was activated in this manner, as were green or yellow lettuce leaves. Chlorophyll seemed to play no rôle in this activation; indeed, an attempt to activate solutions of chlorophyll consistently failed. Among other substances which could not be activated by these radiations may be mentioned hæmoglobin, cream, phosphatide of yolk of egg, glycerol, and gelatin. Oxygen seemed to play little or no part in this process, as the change was found to take place in an atmosphere of nitrogen. On the other hand, refined wheat flour readily underwent activation, as did dry milk powder. Recently dried milk which had been irradiated three months ago was again tested and found to be active; 5 per cent. of this dried milk powder substituted for an equivalent amount of the flour in the standard rickets-producing dietary was sufficient to render it a markedly rickets-protective, instead of a rickets-producing, ration. In this connexion it is of interest to note that Cowell,[7] in a recent paper entitled Irradiation of Milk and the Healing of Rickets, reported favourable results in the treatment of animals with irradiated fluid milk. Kramer likewise has reported favourable results with irradiated fluid milk in the cure of infantile rickets.[8]

As it has been repeatedly shown that the active principle of cod-liver oil is present in its non-saponifiable and absent in its saponifiable fraction, it was interesting to ascertain whether this same relationship held true for activated vegetable oil. Without entering into the technical details of this experiment, which may be found elsewhere, it may be stated that fractionisation showed that the active principle is present only in the non-saponifiable moiety of the irradiated oil, the other fraction being apparently as inert as ordinary oil which has not been irradiated.

### *Antirachitic Potency Conferred by Irradiation.*

In January of this year we communicated the results of a series of experiments[9] which showed that the phytosterol obtained from these oils, although unable to protect against rickets, can in the same way be endowed with antirachitic potency, and, furthermore, that irradiation experiments carried out with purified cholesterol gave the same result (Table I.).

TABLE I.—*Irradiated Cholesterol and Phytosterol.*
*Rickets-producing Diet.*—Low Phosphorus No. 84.

| Rat weight. | Substance fed. | Rickets. | Blood P. (Inorganic). |
|---|---|---|---|
| g. | | | mg. %. |
| 50–60 | 0 25 c.cm. cholesterol,* *irradiated* 1 hr. at 1 ft. | No. | 4·80 |
| 44–40 | | ,, | 2·99 |
| 40–40 | | ,, | |
| 44–34 | | ,, | |
| 50–50 | | ,, | |
| 30–34 | | ,, | |
| 40–40 | 0·1 c.cm. cholesterol,* *irradiated* ½ hr. at 1 ft. | ,, | 2·85 |
| 40–42 | | ,, | |
| 50–50 | | ,, | |
| 48–50 | 0·25 c.cm. cholesterol,* *non-irradiated.* | Mod. | 3·64 |
| 44–50 | | ,, | |
| 44–50 | | ,, | |
| 40–46 | | ,, | |
| 40–40 | | ,, | 2·41 |
| 34–38 | | ,, | |
| 44–38 | | Slight. | |
| 38–30 | | ,, | |
| 40–50 | 0·25 c.cm. phytosterol,* *irradiated* 1 hr. at 1 ft. | No. | 3·31 |
| 48–42 | | ,, | |
| 50–50 | | ,, | |
| 30–46 | 0·25 c.cm. phytosterol,* *non-irradiated.* | Mod. | 2·70 |
| 50–54 | | ,, | |
| 38–58 | | ,, | |
| 38–36 | | Slight. | 2·40 |
| 40–44 | | Mod. | |
| 30–30 | | Slight. | |

* 1 per cent. in water.

For these experiments the cholesterol was irradiated either dry or suspended in water, and was fed to the rats usually in a dosage of 0·1 c.cm. daily of a 1 per cent. suspension. Shortly thereafter the results of further experiments with irradiated cholesterol were communicated. It was found that activated cholesterol is able to exert its protective effect, not only when it is given by mouth, but likewise when it is suspended in water and injected subcutaneously in small amounts. This result will have to be studied further, in view of the fact that cod-liver oil is supposed to be of little or no value when given by this method. A series of tests with selective filters brought out the additional fact that the radiations which render cholesterol active biologically are similar in wave-length to those which we had previously found to be protective when animals were exposed directly to the rays. In general, it may be stated that these effective wave-lengths are about 300 μμ, and that ultra-violet radiations longer than 313 μμ, as well as all the visible rays of the spectrum, have no power whatsoever to bring about this alteration.

It has been shown by various investigators that rickets can be developed in rats as the result of placing them on diets either low in phosphorus or low in calcium. The microscopic picture of the bones is somewhat different according to which of these rations is fed. It was found that irradiated cholesterol is effective in preventing rickets occasioned by either of these deficient diets—whether low in phosphorus or low in calcium.

### *Activation of Cholesterol.*

These experiments with cholesterol have been recently confirmed by various investigators. Drummond and his co-workers[10] obtained similar results with irradiated cholesterol obtained from brain or from cod-liver oil. Rosenheim and Webster[11] activated cholesterol dissolved in liquid paraffin. By these methods they seem to have been able to reduce the required protective dose to less than 1 mg. Very recently Webster and Hill,[4] in an article on the Causation and Prevention of Rickets, state that "further investigations show that cholesterol or a vegetable sterol after radiation has very great antirachitic power." It seems evident, therefore, that there can be no doubt regarding the fact that either phytosterol or cholesterol can regularly be activated by means of ultra-violet irradiation.

As far as we know, there have been no previous experiments on the effect of ultra-violet rays on these sterols. Some years ago Ritter[12] observed that preparations of cholesterol, prepared some 25 years previously, had become yellow in colour during this interval. He writes that "the preparation had stood in glass-stoppered closed bottles in a glass cupboard." A few years later Schulze and Winterstein[13] reported that they had kept some cholesterol for two years between watch-glasses, and that it had become yellow and its melting-point had fallen from 116·5° to 135°. Some cholesterol, which had been stored for the same length of time in a test-tube in an atmosphere of carbon dioxide, showed a lowering in the melting-point of only 1°. Their conclusion was that the alterations were probably an oxidation effect occurring in association with light. These changes in cholesterol can have nothing in common with the activation which we are considering. The fact that the change took place while the cholesterol was in glass bottles and in a cupboard eliminates this possibility, for, as is well known, the radiations which are able to traverse glass are inert in relation to rickets. Our experiments have shown that when cholesterol is activated by means of ultra-violet light its melting-point is but little altered and that it does not change in colour. It is only after it is irradiated for long periods, for six or eight hours or longer, that its melting-point falls and that it begins to develop a yellow tint. But when such chemical and physical changes are brought about it is found that the cholesterol is not active, that the prolonged irradiation has caused it to pass through the stage of activation into one of de-activation. After the irradiation has been maintained for a period of 24 to 48 hours the cholesterol acquires a canary yellow colour, and its melting-point drops to a point similar to that reported by Schulze. It may be added that animal tests have shown that cholesterol which has been de-activated by means of prolonged irradiation cannot be reactivated by the ultra-violet rays; the reaction is not reversible.

These biological experiments were confirmed by means of spectral absorption tests, in which the cholesterol was dissolved in alcohol and illuminated by means of the mercury-vapour lamp. These tests showed that activated cholesterol absorbs ultra-violet radiations to a less degree than does ordinary cholesterol, an effect which is intensified to a certain extent with increasing amounts of irradiation. If, however, irradiation is prolonged for many hours the activated cholesterol becomes even less transparent than non-irradiated cholesterol. Visible light, radiant heat, and Röntgen rays do not alter the absorption spectrum of cholesterol. It is unnecessary to give in detail the result of these experiments as they have been reported elsewhere.[9] They are mentioned merely to emphasise the fact that they confirmed in all respects the biological tests which were carried out on rats. The fact that spectral absorption was altered in the course of activation would seem to indicate that the change is of a chemical rather than of a physical nature. In this connexion it may be added that attempts to concentrate the active fraction of irradiated cholesterol proved abortive, and that successive fractions which were obtained in this way were found to be less active, rather than more active, when tested biologically or by the spectral absorption method.

In view of the fact that ultra-violet rays are specific in the therapy of rickets, and that these radiations do not penetrate the skin, an experiment was devised to determine whether the skin itself could be activated after having been removed from the body. Skin is particularly rich in cholesterol; in fact, no other organ except the brain contains a greater total amount of this substance. It seemed, therefore, probable that the cholesterol in the epidermis would respond to irradiation. To this end human skin and calf skin were irradiated and fed daily in 1 g. per capita amount to rats which were receiving a low phosphorus diet. The control series received non-irradiated skin. As will be seen in Table II., the rats which received the irradiated skin were regularly protected from rickets, whereas the control animals developed rickets; the inorganic phosphorus of the blood followed a parallel course. This result is of interest in connexion with the recent experiments of Luce,[14] who found that "exposure to sunlight appears to have a small effect in determining the antirachitic value of the milk" of the cow.

TABLE II.—*Feeding Experiments with Irradiated and Non-irradiated Skin.*

*Rickets-producing Diet.*—Low Phosphorus No. 84.

| Rat No. | Weight. | Substance fed. | Rickets. | | Blood P. (inorganic). |
|---|---|---|---|---|---|
| | | | Radiographic. | Macroscopic.* | |
| | g. | | | | mg. %. |
| 7388 | 60–69 | 1 g. human skin, *irradiated* ½ hr. at 1 ft. | No. | No. | 2·07 |
| 7389 | 74–80 | | " | " | |
| 7390 | 70–80 | | " | " | |
| 7391 | 60–70 | | " | " | |
| 7392 | 60–64 | 1 g. human skin, *non-irradiated.* | Mod. | Mod. | 1·04 |
| 7393 | 60–69 | | Slight. | Slight. | |
| 7394 | 70–80 | | Mod. | Mod. | |
| 7395 | 72–80 | | " | Slight. | |
| 7396 | 60–69 | 1 g. calf skin, *irradiated* ½ hr. at 1 ft. | No. | No. | 2·03 |
| 7397 | 74–96 | | " | " | |
| 7398 | 60–80 | | " | " | |
| 7399 | 74–90 | | " | " | |
| 7400 | 60–64 | 1 g. calf skin, *non-irradiated.* | Mod. | Mod. | 1·25 |
| 7401 | 64–68 | | " | " | |
| 7402 | 72–84 | | Marked. | Marked. | |

* Microscopic, Nil.

It would seem quite possible that the cholesterol in the skin is normally activated and rendered antirachitic by ultra-violet irradiation, that the solar rays and similar artificial radiations are able to bring about this conversion. This point of view regards the superficial skin as an organ which reacts to particular light waves (the epidermal organ) rather than as a mere protective covering.

### *Application to Practical Dietetics.*

The remarkable antirachitic potency which has been brought about in cholesterol and in vegetable and animal foods by means of artificial irradiation naturally suggests an application of this procedure to practical dietetics. Table III. illustrates the results obtained in cases of rickets by giving irradiated foods or cholesterol. It will be noted that the best result was obtained with irradiated dried milk. This milk was irradiated in thin layers for a period of half an hour with the lamp at a distance of 1 foot.

In regard to the spinach, which is recorded in the table, and which was found to have acquired antirachitic properties, it should be added that it was cooked for half an hour subsequent to having been irradiated, and that this process did not seem to have affected its activity. A test was carried out also with cholesterol. This cholesterol was irradiated in the dry state for half an hour with the lamp at a distance of 1 foot, and was at once incorporated in cotton-seed oil to the extent of 3 per cent.

TABLE III.—*Treatment of Rachitic Infants with* IRRADIATED FOODS (*March*).

| Case. | Age (mos.). | Food. | Inorganic P. (mg.) | Radiograph. |
|---|---|---|---|---|
| 1 | 5 | Carrots. | 3·1 .. 2·9 | Slight healing. |
| 2 | 5 | | 3·2 .. 3 2 | Negative. |
| 3 | 5 | | 3 2 .. 2·3 | ,, |
| 1 | 9 | Spinach. | 2·7 .. 3·6 | Slight healing. |
| 2 | 19 | | 2·8 .. 3·5 | ,, ,, |
| 3 | 7½ | | 3·4 .. 2·9 | Negative. |
| 1 | 4 | Cholesterol (3 % in oil). | 2·2 .. 2·7 | Slight healing. |
| 2 | 5 | | 2·2 .. 3·1 | ,, ,, |
| 3 | 6 | | 2·5 .. 4·5 | ,, ,, |
| 1 | 13 | Dry milk. | 2 6 .. 4·1 | Mod. healing. |
| 2 | 13 | | 3·3 .. 5·1 | Healed. |
| 3 | 9 | | 2·4 .. 4·8 | Mod. healing. |

An extensive series of experiments had developed the fact that cholesterol which had been irradiated by ultra-violet rays readily lost its acquired activity when kept either in a dry state or suspended in water, but that it did not undergo this "ageing process" when dissolved in oil. Irradiated cholesterol, when given in oil in a dosage of two teaspoonsful daily, brought about definite improvement in the course of four weeks. It is premature to discuss whether the antirachitic action of irradiated cholesterol is comparable to that of ultra-violet rays or to cod-liver oil. Recent experiments would tend to indicate that larger doses are of advantage. However, the established fact that foods, as well as cholesterol and phytosterol, can be endowed with specific antirachitic potency has, quite apart from any clinical application, a definite theoretical interest and value. It furnishes a chemical basis for interpreting the remarkable action of ultra-violet irradiation in rickets.

At the present time it is difficult to state the relationship between activated cholesterol and the vitamins. The definition of a vitamin is so vague that there may well be a difference of opinion as to whether one should consider that a vitamin has been elaborated by means of irradiating cholesterol. It is true that the amount of irradiated cholesterol which is needed for protection or cure is of the magnitude which we are accustomed to associate with the vitamins. This question, however, has now advanced beyond the phase of biology into the sphere of chemistry, and judgment must be deferred until the subject has been elucidated by chemical investigation.

### *Bibliography.*

1. Hume, E. M., and Smith, H. H.: Biochem. Jour., 1923, xvii., 364.
2. Webster, T. A., and Hill, L.: Ibid., 1924, xviii., 340.
3. Hess, A. F.: Proc. Amer. Pediat. Soc., June 7th, 1924; abstructed in Amer. Jour. Dis. Child., 1924, xxviii., 256.
4. Steenbock, H., and Black, A.: Jour. Biol. Chem., 1924, lxi., 405.
5. Webster, T. A., and Hill, L.: Brit. Med. Jour., 1925, i., 956.
6. Hess, A. F., and Weinstock, M.: Proc. Exp. Biol. and Med., 1924–25, xxii., 5, 6, 76; Jour. Biol. Chem., 1924, lxii., 301; 1925, lxiii., 297.
7. Cowell, S. J.: Brit. Med. Jour., 1925, i., 594.
8. Kramer, D.: Amer. Pediat. Soc., May, 1925.
9. Hess, A. F., and Weinstock, M.: Proc. Soc. Exp. Biol. and Med., 1925, 227, 315; Jour. Biol. Chem., 1925, lxiii, 305; lxiv., 181, 193; Jour. Amer. Med. Assoc., 1925, lxxxiv., 1910.
10. Drummond, J. C., Rosenheim, O., and Coward, K. H.: Jour. Soc. Chem. Industry, 1925, xliv., 123.
11. Rosenheim, O., and Webster, T. A.: THE LANCET, 1925, i., 1025.
12. Ritter, E.: Zeitschr. f. Physiol. Chemie, 1901, xxxiv., 480.
13. Schulze, E., and Winterstein, E.: Ibid., 1904, xliii., 316; 1906, xlviii., 546.
14. Luce, E. M.: Biochem. Jour., 1924, xviii., 1279.

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# ISCHÆMIC NECROSIS OF THE CARDIAC WALL.[1]

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(*With Coloured Plate.*)

SUDDEN or rapid occlusion of a larger branch of one of the coronary arteries of the heart by thrombosis or (much less often) by embolism initiates a certain series of symptoms which it is convenient to group under three heads: (*a*) acute ventricular failure, (*b*) chronic cardiac failure, and (*c*) death before diagnosis.

### *Cases with Acute Ventricular Failure.*

The largest group is that fully described in recent years by American physicians. Our experience of these has differed from theirs in that we have not seen a necropsy in a case of this kind. Possibly the fact that hospital patients in America come from a less restricted social stratum than in this country may account for the difference. Anginal symptoms are much more often encountered in private than in hospital patients in this country. Our own experience of this category of symptoms, embracing about a dozen cases, all of which, save one, arose in men, and all in persons of 60 or more, has been drawn exclusively from private practice. The following note of one of these histories embodies most of the points to which we need draw attention.

The patient, a medical man of 62, had for some long time been known to have a high blood pressure. For a year, on and off, he had been troubled by præcordial pain. The night before he was first seen by one of us (C. F. C.) he had a very severe attack of this pain, the worst he had ever experienced. He gave himself ¼ gr. of morphine and used a boxful of amyl nitrite capsules without any relief; this he finally secured by administering chloroform to himself by inhalation. When seen he was orthopnœic, pallid, and sweating. He had a wide, feeble impulse, triple rhythm, and an alternating pulse. Two days later the pain had quite gone, but there was tenderness over the præcordia, the pulse still alternating, its rate 116 per minute, and there was a characteristic pericardial to-and-fro rub over the area of cardiac impulse, with râles at the bases. Seen again that night, he appeared to have a totally irregular pulse, but no record could be made. Next day this arrhythmia had gone, but the pulse was still alternating. He improved for a few days, then died suddenly in the night.

Some of our patients have died in the attack; others have survived for days or weeks in a precarious state of collapse, punctuated and aggravated by recurrence of the initial symptoms. There is often slight fever for the first few days. The patients have been so ill that it has, unfortunately, been impossible to get any electrocardiograms.

### *Cases with Chronic Cardiac Failure.*

In this class the patient survives longer, possibly because the arterial occlusion is less rapidly consummated. The symptoms are well illustrated by the following history.

A woman of 39 was well till January, 1922, when she had "influenza." In the following month she had attacks of paroxysmal dyspnœa with vomiting. Ever since then she had been orthopnœic, with loss of flesh. When seen by one of us (C. F. C.) she had a pulse of 108 to the minute, which alternated; a blood pressure of 140 mm. Hg systolic and 120 diastolic; a diffuse impulse, its area being increased to the left; and a bruit de galop. She was very œdematous as high as the waist. Death ensued about three months after the onset.

*Post-mortem.*—The territory of the anterior descending branch of the left coronary artery was extensively fibrosed, white, and tendon-like. A thin line of muscle and an intact endocardium covered it internally; its pericardial

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[1] Concluding a discussion introduced by Dr. A. G. Gibson at a recent meeting of the Cardiac Club. See THE LANCET, Dec. 19th, 1925, p. 1270.

LANCET, Jan. 2nd, 1920.

FIG. 1.

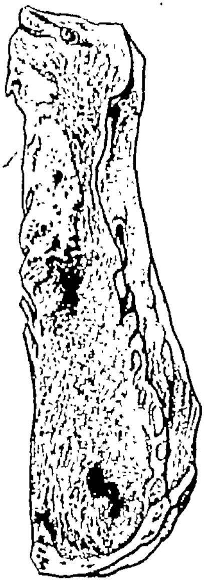


FIG. 2.

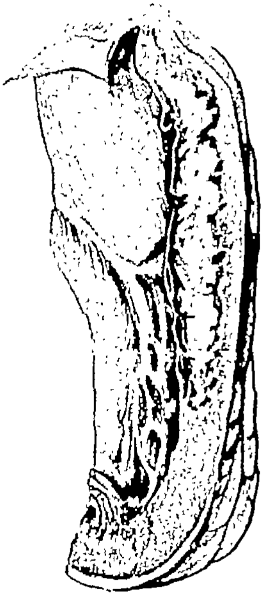


FIG. 3.

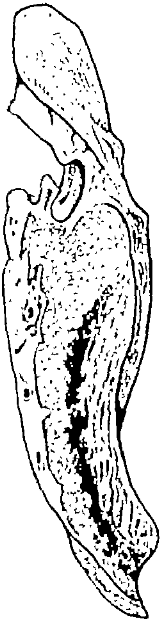
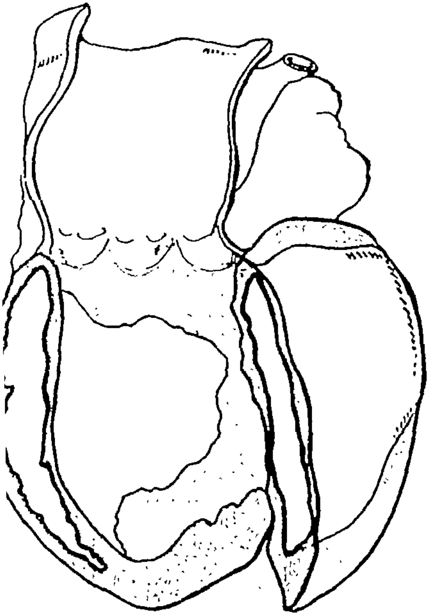


FIG. 4.



# DR. CAREY F. COOMBS AND DR. GEOFFREY HADFIELD: ISCHÆMIC NECROSIS OF THE CARDIAC WALL.

## *DESCRIPTIONS OF ILLUSTRATIONS.*

Infarction (anæmic necrosis) of the heart wall.

Male aged 48. Following thrombosis of an arterio-sclerotic coronary artery. Lesion is 3-5 days old.

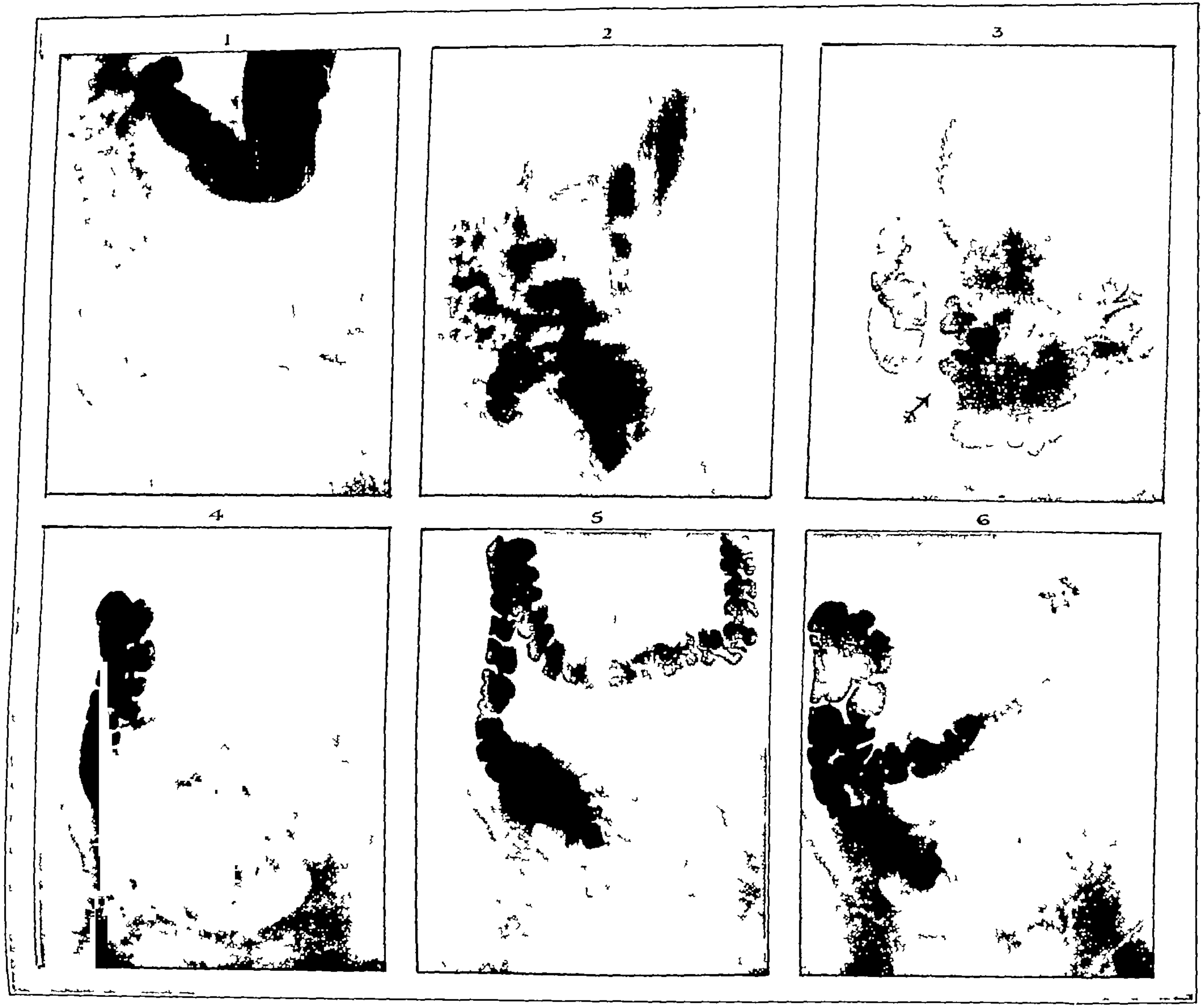
Fig. 1. Inter-ventricular septum in section.

Fig. 2. Left ventricular wall in section: through centre of lesion.

Fig. 3. Left ventricular wall in section: through edge of lesion.

Fig. 4. Diagram showing extent of lesion. Necrotic muscle in yellow.

DR. T. I. CANDY: INCOMPLETE INTESTINAL OBSTRUCTION.



surface was not adherent. The fibrosed muscle was slightly stretched and the lesion formed an ill-defined pouch. There was no suggestion of recent infarction. The anterior descending branch of the coronary artery was obliterated at its origin in the auriculo-ventricular groove, apparently by old thrombosis. Arterio-sclerosis was slight in the other coronary vessels.

### *Cases with Unrecognised Symptoms.*

In this group the patient dies of symptoms, the nature of which is not realised during life.

The coloured plate (for which we are indebted to Miss Pillers) accompanying this note represents the heart of a man of 40 who was sent up to the ward, seen by one of us (C. F. C.) at the end of a round, and put to bed for detailed observation. He said that for about a year he had had pain under the sternum on exertion. About a week before admission, his own doctor had seen him and diagnosed influenzal pneumonia, but had remarked the disproportionate severity of his dyspnœa. When admitted he was pale and very dyspnœic, but able to talk cheerfully and even to joke about the prospect of an early return to work. There were râles all over both chests, and in retrospect it seems that the heart sounds must have been weak, but at the moment no physical signs of cardiac disease were noted and the presence of a serious heart lesion was barely suspected. He became rapidly worse and died that night.

*Post-mortem.*—Extensive, massive, and recent infarction of the heart wall was present at a stage rarely found at autopsy, the mass of opaque, yellow and necrotic muscle being still in situ, and its irregular sinuous edge clearly marked out by a thick line of congested arterioles. The area of ischæmic necrosis is indicated in the diagram; it did not correspond exactly with the territory of the occluded vessel and (as is usual) the deep central layers of the muscle were most affected. Typical gummatous aortitis was present, and one lung presented the naked-eye picture of pneumococcal lobar pneumonia, such as is seen about the fourth to the sixth day. The myocardial infarction and the pneumonia were of approximately the same age, and it is tempting to assume that they were related, the acute pulmonary infection being the immediate cause of the recent obliteration of an artery already narrowed by syphilitic infection.

In this category also should be included cases the symptoms of which are apparently abdominal.

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# A RADIOLOGICAL STUDY OF A CASE OF INCOMPLETE INTESTINAL OBSTRUCTION.

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(*With Illustrative Plate.*)

THE accompanying illustration of a series of six bismuth-meal skiagrams will be of interest as a radiological study of obstruction of the intestinal tract and as an example of modern radiographic technique. A short account of the clinical course of the case is given from the surgical and pathological points of view.

The skiagrams were taken at the following intervals after ingestion of the bismuth meal, all in the prone position: (1), 5 minutes; (2), 3 hours; (3), 6 hours; (4), 12 hours; (5), 24 hours; (6), 36 hours. (See plate.)

For the information of those interested in the technical side, the following are the exposure data which were the same for each skiagram: Exposure time, 1 second; spark-gap, 5 inches; milliampèrage, 40 ma.; focal film distance, 30 inches; instrument, 10 K.V.A. transformer; tube, standard Coolidge; screens, double intensifying; film, 15 by 12, Eastman dupli-tized, ordinary.

Another no less important factor in the attainment of the uniform result was the dark-room technique, which was carried out strictly in accordance with the directions of the makers of the dupli-tized X ray film —namely, development for a standard time of five minutes, with a standard developer formula, at a standard temperature of 65° F.

### *History of the Case.*

The patient, a woman, aged 47, was admitted to the surgical wards of the Royal Gwent Hospital, under Mr. Morrell Thomas, in January, 1923. She complained of constant abdominal pain more or less in the region of the umbilicus and right iliac fossa, but not very definitely localised. There was deep tenderness over the ileo-cæcal region. The symptoms dated back for 12 years. Appendicectomy had been performed ten years previously, which gave temporary relief. The symptoms recurred about six months afterwards, at first in a mild form, but gradually getting worse. For the past two years she had been a complete invalid with abdominal pain. Vomiting was an occasional symptom but not a frequent one. She always suffered greatly from constipation. She was losing weight, and said she was only a shadow of her former self. Weight on admission, 7 st. She had been in several hospitals, but a second operation had not been undertaken. She had not previously had a bismuth-meal X ray examination.

### *X Ray Examination Report.*

Retention in stomach after six hours. Definite ileal stasis and marked dilatation of the coils of the jejunum, showing prominently the valvulæ conniventes. There is narrowing of the terminal few inches of the ileum, causing a partial obstruction (Fig. 3) and stasis in the large bowel.

### *Operation.*

Laparotomy was performed by Mr. Thomas in February, 1923. The terminal 6 inches of the ileum along with its mesentery were found to be thickened and indurated. Mr. Thomas described it as resembling the appearance and feel of a "leather-bottle stomach." The part was excised, including the thickened mesentery, and ileo-cæcostomy was performed. After the first week the patient began to gain strength. All symptoms gradually disappeared, and she was discharged from hospital "cured" on March 17th, 1923.

### *Pathological Report.*

Dr. H. W. Catto, hon pathologist, reported as follows on the excised specimen:—

*Naked-eye examination.*—The intestinal wall is thickened and the lumen narrowed with the mucous membrane thrown into folds. The mesentery attached to this portion is half an inch thick and is leathery to the feel.

*Microscopic examination.*—There is no new growth, either innocent or malignant, no specific inflammation, either tuberculous or syphilitic, and no degenerative changes. The thickened mesentery is due to a copious deposit of fat which also spreads over the bowel. The musculature of the intestine is hypertrophied, indicating that it had difficulty in doing its work. It would seem that the lipomatosis impeded peristalsis, causing hypertrophy and spasm of the muscle tissue, causing the latter to act as a pylorus tonically contracted so that the lumen was narrowed and the symptoms of obstruction arose.

### *Present Condition.*

Being interested in the after-history of the case I recently wrote asking the patient to come to hospital and report upon her present condition. She said she no longer suffered from any of the old symptoms and was in excellent health and able to carry out her household duties in a manner she had not done for years. She had excellent appetite and slept well. She said, however, that she had had occasional bouts of diarrhœa lasting a few days which had been troublesome for some months after the operation, but that she was being troubled less and less with this symptom. She looked in excellent health and had gained nearly 2 st. in weight.

### *Observations.*

In all probability this peculiar pathological condition was present ten years ago when appendicectomy was performed and was overlooked at the time of the operation, but the question is if X ray examination had been carried out at that time would it have detected the nature of the trouble and localised the seat of obstruction so definitely as it did ten years after? The answer in all probability is no, because the condition was more advanced when the present X ray examination was made, and radiographic technique has advanced considerably during that period.

I wish to acknowledge my indebtedness to Mr. Thomas for his kind permission to make use of the clinical notes of the case, and to Dr. Catto for permitting me to publish his pathological observations.

# BOROCAINE:

## A NEW LOCAL ANÆSTHETIC.

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Borocaine is announced, in the terms invariably employed for any new local anæsthetic, as possessing negligible toxicity and high anæsthetic efficiency. These two properties represent the fundamental criteria for estimating the utility of a new drug of this class. The value to clinical users of observations on these matters depends largely on the fidelity or otherwise with which clinical conditions can be reproduced.

### *Toxicity.*

In measuring toxicity we are compelled to rely on animal experiments, trusting that the information they give will be reflected in clinical practice. The points that have appeared to the author to demand attention, if our results are to be really helpful, can be summarised as follows :—

1. Subcutaneous injection of the drug affords the only method of administration which corresponds to clinical usage, and at the same time permits accurate measurement of the dose. A constant site of injection is necessary.
2. Since clinically only dilute solutions are injected, the greatest practicable dilution of the drug should be employed. This materially affects some drugs, but not all. Literally to use clinical dilutions is not practicable.
3. The same volume of diluent, approximately, should be used for the critical dose of each drug.
4. Apes are too expensive to use. Mice, rats, rabbits show a considerable tolerance to drugs of this class. Cats, dogs, guinea-pigs afford a useful compromise, having a susceptibility not much less than man.
5. The fraction of the fatal dose that will give convulsions is different with each drug. The minimal lethal dose affords essential information, and a measure of toxicity applicable to all drugs; and should be our standard of toxicity.
6. Finally, our deductions must be "fair"; for example, if we are dealing with drugs of very varying alkaloid content, we should emphasise the fact to avoid the chance of the general reader being misled.

Guided by these considerations, experiments were carried out with guinea-pigs, carefully chosen for uniformity. The greatest practicable dilution is one that gives a volume of 5 to 10 c.cm. for the minimal lethal dose in a guinea-pig of 500 g. (called the "standard dose"). The author had prepared a quantity of ethocaine borate before the drug was commercially available; this had a melting point 166° C.; and gave a pH between 8·0 and 8·5. Borocaine E was also kindly supplied by the manufacturers. The following is an abridged protocol of a typical experiment:—

No. 271.—Weight, 141 g. Injection of 5·50 c.cm. of borocaine E solution, 5 per cent. at 11.44 A.M., 15/10/25.

| Minutes. | |
|---|---|
| 12 .. .. | Dazed, quiet. |
| 17 .. .. | Falls over, head retraction. |
| 25 .. .. | Severe general convulsions. |
| 41 .. .. | Gasping, feeble movements. |
| 76 .. .. | Feeble scratching, cannot rise. |

The animal was nearly, but not quite, recovered when chloroformed at 5 P.M.

Dose: 275 mg.–620 mg. per kilo.

The results of a series of experiments are summarised in Table I.

From Table I. we see that though the toxicity of ethocaine borate is much less than that of cocaine, it is a measurable quantity. It is to be noticed that the concentration of ethocaine in the two series, as hydrochloride and as borate, was almost identical; that the dilution of drug was again the same; and that *the toxicity of ethocaine is the same whether it is gi*[illegible] *as hydrochloride or as borate.* The apparent [illegible]e between the two salts is to be attributed [illegible]eat difference in their alkaloid content.

TABLE I.

| Drug. | Concentration of solution. | Alkaloid content of— | | Dose survived, in gm./kilo. | Minimal lethal dose in gm./kilo. | Volume of standard dose c.cm. | Lethal toxicity of— | | Comparative toxicity of drug: Cocaine HCl = 1. |
|---|---|---|---|---|---|---|---|---|---|
| | | Drug. | Solution. | | | | Drug kilo/gm. | Alkaloid kilo/gm. | |
| | % | % | % | | | | | | |
| Cocaine . | 0·5 | 89 3 | 0·45 | 0·057 | 0 060 | 6 0 | 16·7 | 18·4 | 1·0 |
| Novoc. . | 3·0 | 86·6 | 2 60 | 0·38 | 0·40 | 6·7 | 2·5 | 2·9 | 0·15 |
| Borocaine E | 5 0 | 52·9 | 2·55 | 0·62 | 0 65 | 6·5 | 1·5 | 2·9 | 0·09 |
| Eth. bor. | 5·0 | 52·9 | 2·55 | 0·62 | 0·65 | | | | |

Cocaine = Cocaine hydrochloride, B.P. Novoc. = novocaine, Ethocaine hydrochloride (kerocain). Borocaine E = Ethocaine borate, B.D.H. Eth. bor. = Ethocaine borate, E. W.-W.

### *Anæsthetic Efficiency.*

If it is important closely to imitate the conditions of clinical usage when estimating toxicity—though such an estimate will only give us an approximate guide in practice—it is still more important when appraising anæsthetic efficiency, for the latter is the clinically essential matter. For the general user, "anæsthetic efficiency" implies a measure of the power of producing anæsthesia. If a given solution produces anæsthesia readily—that is, rapidly—we say *that its anæsthetic efficiency is high,* and vice versa. There being no absolute standard, all our estimates are comparative. If two solutions produce anæsthesia in the same time we can say that their efficiency is the same, and thence deduce the relative efficiencies of their constituents.

The phrase "surface anæsthesia" implies anæsthesia resulting from surface application; it must not be confounded with "superficial anæsthesia." At least in the nose, the latter is relatively unimportant, though readily produced. It is for operations involving cutting of bone, &c., that real anæsthesia is necessary. The phrase, therefore, should mean *good anæsthesia down to and including the periosteum.* Such a standard of comparison brings out the real value of different drugs; those that penetrate the tissues slowly produce this deep anæsthesia with difficulty—their "anæsthetic efficiency" is low.

### *Animal Experiments.*

As Le Brocq pointed out in 1909, animal experiments on surface anæsthesia are apt to be very unsatisfactory. The animal does not uniformly indicate pain. We do not know, for example, that the stimulus provoking a leg reflex in a frog bears any but the most superficial resemblance to what man calls pain. And if we rely on the corneal reflex in a mammal, we are probably measuring abolition of sensibility to touch rather than to pain. At least, in man it is easy to show that the reflex is abolished before the cornea is surgically anæsthetic.

There is another, and more serious, objection to the cornea. It is a structure unique in (*a*) thinness of covering epithelium, (*b*) type and distribution of nerve-endings and fibrils, (*c*) vascular arrangements, and (*d*) is devoid of mucous glands, &c. Whatever it may be, it does not at all resemble mucous membrane. Nor can we expect results obtained for the one tissue to apply to the other.

But the efficiency of drugs of this class can be readily ascertained by direct observations in man, under the actual conditions of practice. There is no need for any extensive investigation under the difficulties inseparable from animal experiment.

*Method.*—What is necessary is to find out under what conditions a given drug produces good anæsthesia. It is "begging the question," for example, to make applications under predetermined conditions as to time or concentration. The time sufficient for one solution may be inadequate for a second, and more than enough for a third. Yet under proper conditions all will give complete anæsthesia; failure to produce the latter, at least with any preparation commercially available, is a reflection on the technique, not on the drug. All that is shown by a "fixed time" experiment is whether or no the technique is suitable for the drug in question.

Several investigators have measured the *duration* of anæsthesia, and assumed that this is a function of anæsthetic efficiency. The two may be related, but the connexion is obscure. In fact, one may be varied without altering the other. But, at least in nasal surgery, it is rarely that difficulty arises from short duration of anæsthesia once this has been effected.

### *Efficiency of Borocaine E.*

The method evolved by the author is, briefly, as follows. The minimum time is measured from the completion of packing the nose to the onset of complete anæsthesia of bone. In a series of experiments the average time for this to occur with a given solution is determined. The concentration of cocaine hydrochloride, B.P., that will act in the same time is also found, and the comparative efficiency of the two drugs calculated. Good anæsthesia implies that neither flinching nor lacrymation occurs. With borocaine E 5 per cent. solution the best result in six operations was "fair" twice, the rest being "poor," even when packing was continued for 12 minutes, with three changes. A 20 per cent. solution was therefore made, both with the author's preparation and the commercial, and after one or two failures good anæsthesia was produced in 12 successive operations; the average time for this was 9 minutes 46 seconds, or 586 seconds. The method of comparison is shown in Table II. The values found for novocaine are included for interest, as the author had reported (by request) on this drug early in 1925.

TABLE II.

| Drug. | Concentration per cent. of— | | Time taken to produce complete deep anæsthesia in seconds. | Concentration of cocaine HCl producing anæsthesia in same time. | Comparative efficiency of— | |
|---|---|---|---|---|---|---|
| | Drug. | Alkaloid. | | | Drug, cocaine HCl = 1. | Ethocaine, cocaine = 1. |
| Cocaine HCl, B.P. | 2·0 | 1·8 | 483 | — | 1·0 | 1·0 |
| Novocaine, ethocaine HCl .. | 20 | 17·3 | 411 | 2·2 | 0·11 | 0·11 |
| Borocaine E, ethocaine borate .. | 20 | 10·0 | 586 | 1·8* | 0·09 | 0·15 |

* Calculated.

Since we desire a high efficiency combined with a low toxicity, a convenient measure of value of one of these drugs is obtained by dividing the figure obtained for the former by that obtained for the latter. It is usual to take the value found for cocaine hydrochloride as unity in each case. This has been done in Table III. From this table we see that ethocaine, whether as hydrochloride or as borate, has a value about the same as that of cocaine hydrochloride, as tested by power of producing deep anæsthesia in the nose, but that the borate is about one-third more useful than the hydrochloride. It is suggested, however, that the variations from unity obtained in this manner are within the limits of experimental error. That, in fact, the power of any drug of paralysing the nerve-fibrils beneath the surface is proportional to its power of paralysing the nerve tissue of the medulla. In other words, anæsthetic efficiency is proportional to toxicity. But this is a digression.

TABLE III.

| Drug. | Comparative toxicity: Cocaine HCl = 1. Table I. | Comparative efficiency: Cocaine HCl = 1. Table II. | Cocaine efficiency ratio. |
|---|---|---|---|
| Novocaine .. | 0·15 | 0·11 | 0·7 |
| Borocaine E .. | 0·09 | 0·09 | 1·0 |

### *Other Properties of Borocaine E.*

Borocaine, like cocaine hydrochloride, can be boiled for a short time without damage; prolonged boiling causes decomposition. A 2 per cent. solution was prepared in the same manner as cocaine solution and left in its stoppered bottle; at the end of four days it had begun to turn brown, and was quite a definite brown colour by the end of ten. The properties, physical and therapeutic, of this solution were not the same as those of fresh solution, and it appears definite that some decomposition had occurred. The stability in aqueous solution, therefore, seems poor.

All the timed observations reported above were made after the addition of adrenalin 1/10,000. With this, though shrinkage was good, the mucosa was often not well blanched; it is suggested that perhaps the adrenalin had penetrated more rapidly, and so acted on tissues not reached by the borocaine. The onlookers remarked the redness of the mucosa and the definite tendency to bleeding. In five cases, after operation, the nose "fairly poured" mucus tinged with blood. A trivial smarting was observed on application of the 20 per cent. solutions; no case of late irritation was seen, nor was any evidence of toxicity observed. In three cases 5 per cent. borocaine without adrenalin caused definite congestion in the nose. This drug does not appear likely to be very useful for nasal work. It is only fair to state that the proprietors, though claiming "borocaine entirely supersedes cocaine," recommend it for the eye, throat, and urethra, but make no claim that it is suitable for nasal work.

### *Summary.*

1. Experimental methods of estimating toxicity and efficiency are considered. 2. The experimental toxicity of three drugs is shown to be in the proportion: cocaine hydrochloride, 1; novocaine, 0·15; borocaine E, 0·09. 3. The efficiency of the same drugs, as measured by the production of deep anæsthesia in the nose, after application to mucous surface, is found to be in the proportion: cocaine hydrochloride, 1; novocaine, 0·11; borocaine, 0·09. 4. Certain other properties of borocaine are discussed.

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# A LUNG SPLINT.

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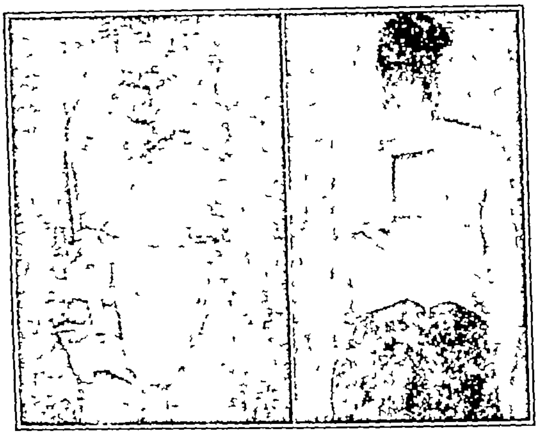
LIMITATION of movement of diseased portions of the lung has long been recognised as a very important factor in the treatment of pulmonary tuberculosis. It is the principle that underlies the artificial pneumothorax and the various thoracoplastic treatments that are in use at the present day. Before the development of collapse therapy, and even since, in order to avoid drastic procedure perhaps of doubtful value to the patient, attempts have been made to secure this limitation of movement by mechanical means, such as the use of heavy sandbags on recumbent patients, various plaster-of-Paris and other splints, or prolonged posturing, &c. None of these have been very successful for various reasons.

In the majority of cases it is the upper halves of the lungs that are the more grossly diseased, and it is the control of the movement of this region that presents a difficult problem. I have felt for a long time that in cases of unilateral or bilateral disease, where the lesions were massed towards the ap
that if the movement of the diseased parts of

could be limited by even so little as 1 cm. during each respiration the chance of healing and fibrosis would be tremendously increased. In such cases where collapse therapy was impossible or inadvisable I have attempted to control the movement of the upper half of the thorax by what I called an "apex belt," a webbing band 3 or 4 inches broad strapped as tightly as the patient could stand it, encircling the chest as high as possible under the arms. The choice of case was limited, but the results were encouraging.

FIG. 1.

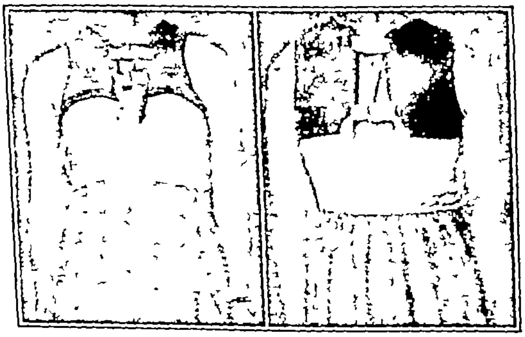


Single open splint showing attachments.

The apex belt, however, had many disadvantages. It was uncomfortable, it was bilateral in action, and it did not control the true apical movement. After some experiments I have devised the splint shown in the accompanying illustrations. It does control apical movement, is entirely unilateral in its action, it does not interfere with manual work, and, if properly made, is not unsightly.

It consists of an aluminium shoulder-piece, covered with rubber and lined by a rubber pneumatic bag which can be inflated to any desired pressure. It exerts an inward pressure in all directions, the power being derived from its own rigidity and by anchoring it to the opposite shoulder and thigh, as can be seen in the illustrations, and in this manner it does not interfere in any way with the movements of the opposite lung. The splint and accessories weigh about 1 to 1¼ lb.

FIG. 2.



Bilateral open splint. Back view.

The early results of its use are apparently encouraging, but, like all other adjuvants to the treatment of pulmonary tuberculosis, its exact value in individual case is incapable of proof. It is in the that its principles and construction may so appeal to my colleagues in tuberculosis work that they will make a trial of it that I am emboldened to publish this description; for by this means alone can its true value, if any, be assessed.

One essential point is the accurate construction and fitting of the aluminium shoulder-piece. (My thanks are due to Mr. W. Nettleton, third engineer of this sanatorium, who has undertaken this, and who has evolved a very excellent technique for the construction of these splints. The rubbering, pneumatic fittings, and strap attachments have been ably carried out by Messrs. Allen and Hanburys, Ltd., who are prepared to make the splint entirely.) Another essential is the fitting of the deflated splint in its right position, by careful adjustment of the tension of the various straps to suit each individual chest, before it is blown up.

The splint is naturally uncomfortable at first. But if it is carefully adjusted, and if only a slight pneumatic pressure is used for the first few days and gradually increased, patients will wear it without any discomfort during the whole 24 hours.

# Clinical and Laboratory Notes.

## TWO CASES OF HÆMOLYTIC ICTERUS TREATED BY EXTIRPATION OF THE SPLEEN.

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THE two cases here recorded presented similar features and were both treated by splenectomy, with favourable results which have lasted for three years and 18 months respectively.

CASE 1.—An unmarried woman, aged 37 years, had had a large spleen from her childhood, with, as long as she remembered, a light yellow discoloration of the scleræ. Her father had always been somewhat icteric and several of her relations had a yellowish complexion. From her sixteenth year she had suffered occasionally from pain in the left side, during which attacks the icterus was more pronounced. As a rule the urine was dark and the fæces of normal colour. For the last three months she had been getting weaker and suffered from anæmic complaints, although previously she felt quite well. On examination she had a slight icterus. The mucous membranes were anæmic. Pulse normal. No glandular swelling. No anomalies of heart or lungs. The liver was slightly hypertrophied, its surface was smooth. The spleen was very large and consistent and extended nearly to the iliac crest and the median line. The urine contained very much urobilin, no bilirubin. The stools were of normal colour. Examination of the blood made out that the hæmoglobin content was 55; erythrocytes 2,600,000, leucocytes 10,500 (8700 were polymorphonuclear), thrombocytes 500,000 (!). There was a marked polychromatophilia and many normoblasts, indicative of the activity of the bone-marrow. The erythrocytes showed fragility, and with 0·6 per cent. NaCl a large number had been hæmolysed. Complete hæmolysis was attained only with 0·2 per cent. (which probably proves a marked bone-marrow reaction).

We had therefore to do with an icteric and strikingly anæmic patient. It is well known that an increased hæmolysis generates a considerable quantity of bilirubin, by which iron is set free, for the greater part in the liver. This excessive formation of bilirubin which is discharged into the intestines results in an increased excretion of urobilin per rectum (normally ca. 150 mg. in 24 hours). An excess of urobilin is absorbed, the liver cannot retain all of it, and so urobilinuria appears. A third symptom of exaggerated hæmolysis is a rise of the bilirubin content of the blood-plasma which may induce icterus, for jaundice may originate from an increased hæmolysis, as well as from bile retention. Hymans van den Bergh[1] has pointed out that by means of a *serum reaction (the so-called direct diazo-reaction)* retention icterus can be distinguished from hæmolytic icterus. In my patient this diazo-reaction was negative (as is always the case in hæmolytic icterus), quantitatively the bilirubin content appeared to have very much increased (determined after Hymans van den Bergh's method,[1] 1 : 50,000; normally ca. 1 : 800,000). An intense urobilinuria was recognised; the amount of urobilin of the fæces has not been determined for this patient. Consequently, an *intense hæmolysis was manifest.* From what has been said it is clear that we were justified in diagnosing the case as one of hæmolytic icterus, that is to say, the hereditary form. Apparently the bone-marrow had been competent to compensate the increased hæmolysis, but for some months the increased hæmolysis had got the better of the still active bone-*marrow, and the patient became anæmic.*

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[1] Der Gallenfarbstoff im Blute.

Before discussing the question of treatment I will describe a second similar case.

*CASE 2.—A man, aged 20, complained of intense lassitude, from which he had been suffering for four months.* For several years he had been slightly jaundiced. He had noticed nothing abnormal about his stools and urine. No pruritus, no pain. He is of a healthy family, with no history of icterus. On examination he presented the brownish-yellow colour, characteristic of hæmolytic icterus. Scleræ yellow. Mucous membranes anæmic. Pulse normal. No glandular swelling. Heart and lungs normal. Liver somewhat enlarged, normally smooth. Spleen very large and consistent, extending to the median line. In the urine an excess of urobilin, no bilirubin. Examination of the blood revealed that the hæmoglobin content was 40; erythrocytes 2,280,000, leucocytes 10,000 (7000 polymorphonuclear). There was polychromatophilia, a good *many normoblasts,* a great many cells with Jolly Howell's corpuscles. With vital staining 50 per cent. of the erythrocytes exhibited the so-called vital granulation of Fiessinger. The patient's serum was bright yellow, and had a bilirubin content of 1 : 30,000. The direct diazo-reaction of Hymans van den Bergh was negative. The amount of urobilin secreted in 24 hours per rectum was 3 g (normal ca. 150 mg.). All the symptoms pointing to excessive hæmolysis were therefore present. The resistance of the erythrocytes to hypotonic salt solutions appeared to be considerably reduced; already with 0·7 per cent. NaCl hæmolysis took place.

### *Discussion.*

All went to show that here also we had to do with a hæmolytic icterus, whether acquired or inherited could not be decided from the anamnesis. The clinical aspect favours the latter view. Furthermore, it appears from the blood picture that the bone-marrow was highly active in combating the anæmia generated by the increased hæmolysis; the anamnesis shows us that in the past this action had been successful, but in the last few months the bone-marrow apparently failed in its task. In both patients the question arose what had to be done: Would *extirpation of the spleen* be the proper treatment?

When Chauffard published his first observations on hæmolytic icterus he believed it to be a harmless disease that entailed hardly any suffering, and did not require any therapeutic measures: "Ils sont plus ictériques *que malades.*" *In fact,* most of the cases are harmless, and slightly icteric patients with an increased hæmolysis, which is entirely compensated by the bone-marrow, can live their lives in *pretty* good health, without complaints worth mentioning. However, there are cases like those mentioned, in which the destruction of the blood is such as to put too great a strain upon the bone-marrow, be the latter ever so active.

Extirpation of the spleen may result in a considerable abatement or the total disappearance of hæmolytic symptoms. Indeed, for Addison's anæmia (the so-called pernicious anæmia) extirpation of the spleen has often been recommended as the proper therapy. In this affection, however, anticipations have been falsified, as the patient soon relapses into his former condition. Records of extirpation of the spleen in hæmolytic icterus are still few. There are cases, however, that lead us to expect better results than in pernicious anæmia. In either case hyperplasia *of the bone-marrow exists; in hæmolytic icterus it* should seem that this is the only change of the bone-marrow, so that we have good reason to expect that the bone-marrow may be completely restored, when the increased hæmolysis is abolished.

### *Treatment by Splenectomy.*

As we feared a fatal issue in our cases without intervention, extirpation of the spleen was decided on.

The first patient was operated upon in July, 1922. The *removal of the enlarged spleen was easily accomplished.* Under the microscope it exhibited all the features familiar to us in conditions of increased hæmolysis (everywhere numerous erythrocytes outside the vessels, phagocytosis of erythrocytes, high endothelia of the sinuses of the venæ). The patient recovered well from the operation and soon after regained her health. The icterus and anæmia disappeared. Six months after the operation the hæmoglobin content appeared to amount to 75, erythrocytes 4,800,000, leucocytes 12,600, thrombocytes 800,000. The blood preparation no longer contained normoblasts, nor was any polychromatophilia distinguishable; there were, however, a few cells with Jolly Howell's bodies. The indications of increased hæmolysis had disappeared; in the urine only a trace of urobilin was demonstrable; the bilirubin content of the serum was now 1 : 250,000, which is practically normal.

When determining the resistance of the erythrocytes to hypotonic salt solutions, I was struck by the fact that it *had not been modified by the operation. Three years after* operation patient was again examined. She still enjoys perfect good health. On examination the blood was quite normal; the resistance to hypotonic salt solutions, however, *was the same as prior to the operation.*

The second patient was operated upon in the beginning of 1924. The operation was uneventful. In the enlarged spleen we noted the same microscopic changes as in the first case. A month after the operation the hæmoglobin content was still 40, two months later 70, three months later from 80 to 85. Then the erythrocytes numbered 4,900,000. A slight leucocytosis of 10,000–15,000 still persisted. After two months there were no normoblasts, no polychromatophilia, a few cells showed Jolly-Howell's bodies, while the number of erythrocytes with so-called vital granulation had become normal (3 per cent.). After three months the marked urobilinuria had much improved, but urobilin was still demonstrable in the urine. The bilirubin content of the serum, which amounted to 1 : 30,000 ante-operationem, now appeared to be 1 : *200,000. There* was an excretion of almost 1 g. of urobilin per rectum every 24 hours (ante-operationem 3 g.). This pointed to considerable improvement, although the values obtained were not yet normal. Just as in the first patient, *the resistance of the erythrocytes to hypotonic salt solutions remained unaltered.*

*I saw the patient again lately.* He looked and felt quite well and there was *not* a vestige of icterus left.

### *Results of Operation.*

In both patients extirpation of the *spleen has* yielded the favourable results we had anticipated. It is interesting to discuss what the further prognosis will be. In my judgment the increased fragility of the erythrocytes should not be regarded in all cases in a similar way. In the literature cases are on record in which the symptoms cannot be due to the spleen, while in others the *extirpation of the* spleen caused the symptom to disappear altogether. May it be possible that the prognosis of the operated cases depends upon this? I mention from the literature a case of Banti, reported ten years after the extirpation of the spleen, in which the favourable condition had maintained itself; here the lowered resistance of the erythrocytes which existed before the operation had given place to normal values. It is not without the bounds of probabilities that we may learn from a wider experience that the persistence of the less resistant erythrocytes may lessen the chances of lasting benefit from the operation. It is notorious that in pernicious anæmia after splenectomy other organs can bring about the increased blood destruction. The danger is not imaginary that in the long run, perhaps after years, the less resistant erythrocytes, which continue after *splenectomy in cases of* hæmolytic icterus such as the above described, may in this disorder be the cause of a reappearance of the increased hæmolysis.

## A CASE OF
## EXCEPTIONAL HYPERGLYCÆMIA WITHOUT COMA.

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AND
GARFIELD THOMAS, M.SC. MANCH., A.I.C.,
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IT would seem of interest to put on record the following case of diabetes mellitus in which the patient was not comatose and yet had in his blood a concentration of more than 1 per cent. of reducing substances (estimated as glucose).

On Nov. 4th, 1924, H. E. T., a male, aged 27, attended the out-patients' department of this hospital complaining of excessive thirst, weakness (he had walked to the hospital, but was very faint on arrival), blurred vision, especially in the right eye, and frequency of micturition. He was quite rational and stated that he had felt weak for about three months and that at times he had been very unsteady on his feet. He added that the excessive thirst had been noticed only during the week just past, and that on account of the parched state of his mouth he had been feeding, during that time, on "bread and milk."

*Condition on Examination.*—The tongue was found to be very dry; the pupils of the eyes reacted to light and accommodation, and there was no diminution of visual field; acetone was not noticed in the breath. The urine had a specific gravity of 1030; it contained a large amount of sugar, a trace of acetone, no aceto-acetic acid, and no albumin. In attempting to estimate the blood-sugar by the MacLean method it was found that, when 10 c.cm. of the filtrate were used, the volume of N/400 thiosulphate required was less than 1 c.cm.

It was decided that the patient should be admitted at once, but, at his special request, he was allowed to return home before entering the ward as an in-patient. On his return a couple of hours later it was found that during this interval he had taken more "bread and milk." The blood test was repeated in duplicate (using only 5 c.cm. of the filtrate for the estimation of the sugar) and the concentration of sugar was found to be 1·2 per cent. In the ward drinks were given freely. During the first 24 hours insulin was not given; dieting was at the rate of 560 calories per diem (made up of carbohydrate 26·5 g., protein 54 g., and fat 26·5 g.). By 10 o'clock on the following morning the blood-sugar had fallen to 0·335 per cent.; the breath then smelled strongly of acetone, but the urine contained no aceto-acetic acid. At midday 10 units of insulin were given and the diet was increased to 1450 calories per diem (made up of carbohydrate 46 g., protein 52 g., fat 117 g.). On the following day 5 units of insulin were given, morning and evening, and the diet was not changed. This was continued for a week; the clinical data collected during that time are set out in the table.

| Date in Nov., 1924. | Diet in cals. | Total insulin per diem. | Pulse. | Blood-sugar % | Urine.* | | |
|---|---|---|---|---|---|---|---|
| | | | | | In oz. | Sp. gr. | Sugar. |
| | | units. | | | | | |
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| 5th | 1450 | 10 | 80 | 0·335 | 33 | 1038 | + + |
| 6th | 1450 | 10 | 80 | 0·188 | 38 | 1036 | + + |
| 7th | 1450 | 10 | 80 | 0·109 | 56 | 1032 | + + |
| 8th | 1450 | 10 | 84 | not est. | 76 | 1030 | + + + |
| 9th | 1450 | 10 | 88 | | 43 | 1036 | + + + |
| 10th | 1450 | 10 | 84 | 0·130 | 70 | 1036 | + + + |
| 11th | 1450 | 10 | — | 0·156 | — | — | — |

* Albumin nil. Aceto-acetic acid was absent until Nov. 9th. It was present (+ +) on the 10th.

The temperature varied between 97° and 98° F. It is unfortunate that the patient had to be discharged from hospital because he would not keep to the diet prescribed for him. He cannot now be traced.

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LEEDS CAMPAIGN FOR SMOKE ABATEMENT.—At the request of the Health Committee the medical officer of health for Leeds has issued a circular letter urging on shopkeepers, occupiers of offices, and proprietors of large professional buildings the necessity of the entire abandonment of the use of raw coal and the adoption of smokeless methods of obtaining heat. It is stated that the change could be effected at a comparatively small cost, and the expense would be amply compensated by the results.

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# Medical Societies.

## LIVERPOOL MEDICAL INSTITUTION.

AT a meeting of this Institution held on Dec. 17th, 1925, Dr. WALLACE JONES contributed a note on the

### *Prognosis of Auricular Fibrillation,*

based on the analysis of statistics of a series of cases attending the Heart Department at the Royal Infirmary. The dominant factor in prognosis was the condition of the heart muscle. Information with regard to this would naturally group itself into (1) clinical evidence, (2) electrocardiographic findings. The symptoms accompanying the onset were very important and, when marked, indicated limitation of the reserve force of the heart and in consequence considerable myocardial damage. The investigation was made to determine the expectation of life from the time when the cases first presented themselves with symptoms of cardiac failure in the Heart Department until they died. It was shown that auricular fibrillation in these cases was more serious in senile than in rheumatic heart disease; that in mitral stenosis the expectation was slightly lengthened by the presence of auricular fibrillation, while in aortic regurgitation this effect was more marked. The prognosis was better in females than males in all types. In the electrocardiographic findings the presence of a bizarre Q.R.S. was of serious significance.

A joint contribution on

### *Sterility due to Impalpable Tubal Defects,*

by Prof. W. BLAIR BELL, Dr. R. E. ROBERTS, Mr. J. ST. G. WILSON, and Dr. S. B. HERD, was introduced by Dr. Herd, who outlined the accepted methods of treatment for sterility in the female, and showed how frequently useless vaginal operations might be performed. As a method for controlling surgical treatment, and avoiding unnecessary operations, the adoption of the tubal patency test by insufflation was held to be of great value. Reference was made to the work and methods of Rubin, Dickinson, Forsdike, and Blair Bell, and a description given of the technique and apparatus employed by the latter—a hand-bulb with reservoir manometer and cannula being used, and air the material employed. Thirty-one cases were tested in this way, and in none of these was there any serious discomfort or disability. Radiological examination was always employed, and in all cases operated upon the previous diagnosis as to the state of the tubes was confirmed. Insufflation was only used for diagnosis, and it was not claimed that the method had any therapeutic value.

Dr. R. E. ROBERTS gave an account, with illustrative skiagrams, of the radiological features in the diagnosis of

### *Patency of the Fallopian Tubes.*

The uterus having been insufflated, any air which has passed through the Fallopian tubes will tend to rise to the highest point in the peritoneal cavity, this point depending on the position of the patient. After the uterine insufflation the patient is therefore made to sit up or stand, and after a short interval in which the air has opportunity to rise in the peritoneal cavity an X ray examination is made of the diaphragmatic and hepatic area in the erect position, a skiagram being invariably taken. If the Fallopian tubes are both occluded no air will have entered the peritoneal cavity and the upper border of the liver cannot be differentiated from the diaphragm. If, however, one or other Fallopian is patent and air has entered the peritoneal cavity by this route, the air will have risen to the under surface of the diaphragm and will be shown in the skiagram as a translucent area between the diaphragm (which appears as a delicate curved line) and the liver, the extent of this translucent area depending on the amount of air which has passed in. Even very small quantities of air can, as a rule, be demonstrated by this method, but it is conceivable that if the tubes are almost occluded the amount of air entering the peritoneal cavity would be so small that it might become entangled in the mesenteric folds and so fail to reach the subdiaphragmatic area.

Mr. ST. G. WILSON was of opinion that inflation was most suitable for cases of "one child sterility" when several years had followed last confinement. Inflation alone cannot always be relied on for a correct result, and he therefore advised injection with lipiodol in all cases which gave negative results with inflation. The clinical signs of passage of air through the tubes were unsatisfactory; he therefore always recommended the help of the radiologist.

# Reviews and Notices of Books.

## TUBERCULOSIS OF THE HIP.

*The Diagnosis and Treatment of Tuberculosis of the Hip.* By G. R. GIRDLESTONE, B.M. Oxon., F.R.C.S., Hon. Surgeon, Wingfield Orthopædic Hospital, Oxford. London: Humphrey Milford, Oxford University Press. 1925. Pp. 94. 8s. 6d.

IN a small volume, well illustrated by skiagrams and agreeably written, Mr. Girdlestone describes the every-day work of a country orthopædic hospital in connexion with the diagnosis and treatment of tuberculous disease of the hip. The opening chapter, which deals with the preliminary diagnosis in the doctor's consulting-room or on his round, contains an exhortation that not only definite but atypical cases should be sent at once to an orthopædic clinic or out-patient department of a general hospital. No one with an extensive experience of this disease will dispute the wisdom of this advice, for a good functional end-result depends on the prompt application of constitutional and appropriate local treatment. The local treatment recommended varies according to the stage of the disease. For the first stage, that of activity, the Jones abduction frame is recommended and ambulatory methods are very properly condemned. Operation has no place in the treatment of children, but the author believes that adults, in whom sound fibrous or bony ankylosis is the goal, require arthrodesis whenever radiograms show definite lesions but not conditions favourable to ankylosis. In the second stage, which is defined as commencing three months after fever has ceased and satisfactory improvement has been shown by gain of weight and an appearance of returning health, it becomes necessary to decide whether to aim at a movable or a fixed hip. Mobility is aimed at when during a test period of weight and pulley extension the movement of the joint gets freer week by week. Ankylosis is the objective when radiograms or tests show that without ankylosis the limb is unlikely to become permanently safe and useful. It is easy, the author remarks, to fall between the two stools and end with either mobility that is not free enough in its range and firm enough at its limits to be safe, or with fixation that is not massive enough to be secure. He points out that weight-bearing joints are prone to osteo-arthritis, and of these the hip most seriously and most painfully; and that, whereas at every step the knee and ankle have to carry the weight of the body, the hip labours under such a mechanical disadvantage that it must bear twice that burden. If mobility is decided on as the aim of treatment, a weight and pulley extension is substituted for the fixed frame; if fixation, a plaster spica is applied which includes also the upper half of the thigh on the sound side. The third stage, defined as commencing three months after the beginning of the second stage, provided all signs of disease apart from sequelæ have disappeared, is treated, in the mobile group, by patten and crutches, then crutches alone, and finally sticks; in the fixation group, by plaster with patten and crutches, followed by plaster and crutches alone and eventually a modified single Thomas splint. In some cases it may take four or five years to achieve ankylosis. Sepsis is dealt with by drastic drainage operations and, if ankylosis is not occurring, excision of the upper end of the femur. The final section of the book is devoted to a critical consideration of end-results (we regret the absence of any statistics) and to a description of operations to correct malposition.

Altogether an admirable little book.

## A MANUAL OF HYGIENE.

By Sir WILLIAM H. HAMER, M.D., F.R.C.P., D.P.H., and C. W. HUTT, M.D., D.P.H. London: Methuen and Co., Ltd. 1925. Pp. 821. 30s.

HYGIENE is defined in the new Oxford English Dictionary as "a department of knowledge or practice which relates to the maintenance of health." An author who would deal compendiously with this department of knowledge must cover an impossibly wide field, relating to almost every human activity and treating as of first importance sociological problems not directly falling within the province of the art of medicine or the sciences on which that art is founded. Clearly some limit to the application of the word must be observed. It is surprising and not a little confusing to those who have to mould their teaching practice in conformity with the requirements of sundry teaching and examining bodies to observe the varying conceptions as to what hygiene means. We are relieved of any doubt in the case of this book, for the preface definitely states that its purpose is to meet the needs of those seeking to obtain a Public Health Diploma. It is from this limited aspect that its value must be assessed. The book is described as being based on Hamer's Manual of Hygiene (1902) and, though a good deal of new material is added, many passages are identical with those of the original manual.

The first four chapters deal in turn with Air, Water, Soil, and Food, and the fifth on familiar lines with the Collection, Removal, and Disposal of Refuse. Dr. Duncan Forbes has rewritten the chapter on Dwellings, Schools, and Hospitals, and (the late) Dr. James Niven contributes chapters on Tuberculosis, Sanitary Administration and Law. Mr. Kenneth Walker deals adequately with Venereal Diseases and Dr. Kenneth Fraser with School Hygiene. In other chapters the subjects of Infection and Immunity, Infectious Diseases, Disinfection, Vital Statistics, Maternity and Child Welfare are discussed in sufficient detail, but the book is kept within a reasonable compass. A certain lack of homogeneity is inevitable as the result of collaboration and of attempts to join new work to old, but the balance is maintained and little new work of real importance is omitted. The preventive idea underlies the whole volume, but for the benefit of students for the D.P.H. this might have been more definitely stressed and illustrated in each particular section. For instance, space given to irrelevant information on fire prevention, in the chapter on "Dwellings," might well have been devoted to the relation, if any, between housing defects and health. The real problems, too, in connexion with the disposal of domestic refuse—namely, the encouragement of fly- and rat-breeding—although they are mentioned, are not sufficiently distinguished from the æsthetic and psychological questions invariably confused with them in the public mind.

We miss further any definite indication as to the value of coördination within one department of all the older and the new public health services. The extent to which specialisation within the public health service is necessary or desirable or dangerous is surely a question of first-rate importance to the prospective health officer. The chapters on Maternity and Child Welfare and School Hygiene, each good in themselves, contain little reference to the complementary service or to the importance of continuous supervision by the same officers of children from birth to the age of leaving school. It ought to be brought more vividly to the notice of the public health student that the linking up of these clinical departments with the public health service is justified mainly by the opportunity it affords of studying disease and ill-health in the mass, perhaps pointing the road to reform, outside the province of medicine. It seems to us that a coordinating chapter might have been added with advantage, either as introduction or conclusion to the manual, and dealing with these questions, as well as the history of the growth of the service and its probable development.

The chapters on Infection, Immunity, and Infectious Diseases are quite admirable. Here the bearing of scientific and clinical knowledge on the prevention of disease is dealt with in a masterly way. The section on Tuberculosis is also excellent, though unnecessary space is devoted to the detailed bacteriological findings of Royal Commissions. These and the preceding criticisms are made because the study of public health covers such a vast field. Hence writers should aim at cutting down to the minimum the enumeration of disconnected facts and keep ever before the flagging mind of the student the underlying preventive idea which gives these facts their significance. Having criticised, we may add that this manual is one of the most useful books of its kind that we have examined. It presents well and clearly the type of knowledge which the health officer should have at his disposal, and is singularly free from printers' errors. The figure on p. 230 is inverted and we have failed to trace the reference in the index to Farr on p. 733. The system by which the names of writers have been selected for mention in the index is not quite obvious. For instance, the name Brownlee appears several times in the text but not in the index; indeed, the epidemiological work of this writer is, perhaps, deserving of more attention than the book gives to it. A complete bibliography at the end of each chapter would be a real undertaking, but if this procedure had been adopted the references at the foot of pages and in the index might have been dispensed with.

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### CRIPPLED CHILDREN.

*The Care and Cure of Crippled Children.* Scheme of the Central Committee for the Care of Cripples. By G. R. Girdlestone (Oxford). London: Simpkin, Marshall, Hamilton, Kent and Co., Ltd.; Bristol: John Wright and Sons, Ltd. 1925. 6*d.*

Although it is not so stated on the title-page, we are informed by the Secretary of the Committee that this is a revised edition of Part I. of the booklet which appeared in 1924. Since that time progress has been made, so that a complete scheme, as described in this pamphlet, of central orthopædic hospital, country town or village clinics, and after-care has either been or is in course of being established in 20 out of the 40 English counties. Information is here given as to the efforts that are being made to cure cripples, prevent crippling, and look after the interests of patients after treatment is at an end. The steps necessary to establish a county or county-group scheme, as originally achieved in Shropshire by Miss Agnes Hunt, and in the group of Oxford–Bucks–Berks by Mr. Girdlestone and his associates, are clearly set forth, and ideal plans for a central open-air hospital and a village clinic are also furnished. This pamphlet cannot be too widely circulated, nor the work of the Central Committee for the care of cripples too well known. This society, the office of which is at Carnegie House, 117, Piccadilly, W. 1, is also concerned in obtaining industrial training for the cured cripple. In the area under the London County Council there is a number of special (cripple) schools for physically defective children, and organisations exist which undertake to secure training and employment suited to the needs of cripples after their discharge from such schools. Th[illegible] are similar schools in some of the large towns [illegible], but by no means in all, and the committee is endeavouring to secure the same advantages for provincial cripples as those available in London. At present a difficult problem is presented to any surgeon in a country town or district who, having treated the deformity of a patient, is asked by philanthropists or relatives to tell them what can be done to train him or her to earn a living. In such a case application to the Central Committee should be made and will receive sympathetic attention.

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### HISTORIC SCIENTIFIC INSTRUMENTS.

*Historic Instruments for the Advancement of Science.* A Handbook to the Oxford Collections prepared for the opening of the Lewis Evans collection on May 5th, 1925. By R. T. Gunther. London: Humphrey Milford, Oxford University Press. 1925. Pp. 90. 2*s.* 6*d.*

Dr. R. T. Gunther, the author of this interesting little handbook, is well known as an earnest student of the history of early science in Oxford concerning which he has written three very charming volumes. Dr. Lewis Evans recently presented his magnificent collection of astrolabes, dials, and other scientific instruments to the University of Oxford, and this collection is housed in the Ashmolean Building, which has thus reverted to its original association with the study of science. The collection was opened on May 5th, 1925, and Dr. Gunther is its very able and enthusiastic curator. He begins his handbook with an account of Ashmole and the old Ashmolean Building. Then follows a guide to the Evans collection of astrolabes and portable dials. The astrolabe is an important instrument not only on account of its use in astronomy and navigation, but on account of the extreme beauty of workmanship which some of the specimens show, and also because it was the first scientific instrument to be described in English and that, too, by no less a person than Chaucer. His treatise is still the standard work on the subject, but without an astrolabe to which to refer it is somewhat difficult reading.

The Oxford collection also contains many fine examples of globes, surveying instruments, telescopes, mathematical instruments, and microscopes. Among the latter are a Marshall's microscope of 1693 and an exact replica of Hooke's microscope purchased at the Crisp sale in 1925. This was the instrument with which Hooke, for the first time in the history of mankind, saw cells. He cut sections of various vegetable tissues and noted the fact that the substances were made up of nothing but cells. Many other interesting instruments are included in the collection, notably the Orrery collection lent by Christ Church. Lord Orrery was a great nephew of Robert Boyle, and the collection contains two beautiful specimens of the astronomical instrument to which Orrery's name has been given. Dr. Gunther has a way of giving extraneous information which makes his handbook original; for instance, concerning theodolites he has a footnote: "The word theodolite is a favourite word with the composers of examination papers in which unusual derivations of words are asked. *Theodolite = theodelite*, a corruption of *athelida*, which was a corruption of *alhidada.*" The alidad, we may add, is the index which turns on a graduated circle and so shows how many degrees are cut off. A simple instance is the hand of a clock.

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### OPERATING ROOM PROCEDURE.

For Nurses and Internes. By Henry C. Falk, M.D., Assistant Attending Surgeon to the French Hospital, New York; Instructor in Surgery at New York University and Bellevue Medical College. London: G. P. Putnam's Sons. 1925. Pp. 385. 15*s.*

In this little volume the author has endeavoured to supply a theatre sister with all the technical details she may require for her work. Commencing with a description of the operating theatre and its general equipment, he goes on to describe in detail the personal preparation of all those engaged in an operation and the various materials required. The arrangement of instruments and their care are described in some detail, and an excellent chapter deals with the important subject of how to keep theatre supplies. The preparation of a patient and the posture required for different operations are briefly but adequately described. The remaining half of the volume is occupied by a series of brief descriptions of the more common operations of surgery. The whole volume is elaborately illustrated by sketches which give a neat and clear idea of the instruments used and the method of their use. The book is the best we have seen dealing with this subject; it should be valuable to the nursing staff of a theatre, and there are few surgeons who would not learn or be reminded of something from its perusal.

### METABOLIC DISEASES.

*Die Stoffwechselkrankheiten in der Praxis.* By Prof. FRIEDRICH UMBER, Berlin. Munich: J. F. Lehmann. 1925. Pp. 163. G.M.8·60.

A SMALL work which seeks to bridge the gap between physiological research and its application in practice is always welcome. In Germany particularly, and to a lesser degree in this country, the war necessitated large-scale experiments in nutrition. It is true, as the author points out, that few entirely new conceptions emerged, but our previous knowledge was broadened and deepened. It is this extended knowledge that Prof. Umber presents to us. The thoroughness with which some of the subjects are treated may be gathered from the fact that some 90 pages are devoted to diabetes alone and to its treatment by insulin. This is, perhaps, symptomatic of a return to that interest in calories which for some time have been eclipsed by the more elusive if no less important accessory factors.

### PHYSICAL CHEMISTRY.

*A System of Physical Chemistry.* By WILLIAM C. McC. LEWIS, M.A., R.U.I., D.Sc. Liv., Brunner Professor of Physical Chemistry in the University of Liverpool. In three volumes. Vol. II.: Thermodynamics. Fourth edition. London: Longmans, Green and Co. 1925. Pp. 489. 15*s.*

THE importance of physical chemistry in medical and biological subjects has come more and more to the fore during recent years. In fact, medical students are now expected to be fully acquainted with the general principles of thermodynamics and their application to colloidal and allied phenomena. The necessary knowledge is usually sandwiched into text-books of physiology, whose authors tend either to assume a knowledge of the elementary principles of physical chemistry or else to enter into a wordy account of this subject not easy to follow. There are, of course, text-books of physical chemistry written especially for medical students. These are, for the most part, quite good, but they gloss over the really difficult sections, which are made much of in the bigger text-books of physiology. For example, Donnan's membrane equilibrium theory as applied to proteins and colloids occupies a very important place in physiology, yet these special books often ignore it altogether. The theory of the double electric layer also tends to be neglected, yet it is constantly spoken of by physiologists. Experience in teaching shows that whereas the medical student will follow the first law of thermodynamics, he has great difficulty in mastering the second. This is mainly due to the poor accounts in the books at his disposal.

The volume now under consideration deals with practically all those points required by the medical student. It opens with chapters on the first and second laws. These are admirably clear, and, in fact, contain just the amount of information required for biological purposes. Medical students would do well to read the first four chapters, even if they have to omit the mathematical section. The next chapters deal with deductions from the two laws—i.e., Le Chatelier's theorem, the phase rule, the Clausius equatracte. A good summary is given of Donnan's work and its application by Jacques Loeb to colloidal behaviour. This is certainly among the most concise and accurate summaries of these important views that we have read. The theory of the ionic micelle is dealt with in rather a brief manner, and perhaps the work of the late Sir William Bayliss upon this point might have received more emphasis. We deal here only with the points of biological importance. These are so clearly dealt with that the book can be recommended to anyone working upon physiological principles. A sound knowledge of mathematics is essential to a thorough understanding, but a great deal of valuable information can be obtained if the mathematical parts of the book are ignored.

*An Intermediate Text book of Physiological Chemistry with Experiments.* Third edition. By C. J. V. PETTIBONE, Ph.D., Associate Professor of Physiological Chemistry, Medical School, University of Minnesota, Minneapolis. London: Henry Kimpton. 1925. Pp. 404. 15*s.*

SINCE this work has reached its third edition it would appear to be a popular book in America, although it is little known over here. Prof. Pettibone's volume is an example of careful compilation, obviously the result of wide teaching experience. The ground covered is that customary to such books and no new features are added. The descriptions are all clear and accurate, but there are no distinctive points which make the volume of special value.

### JOHN STEARNE, M. AND J.U.D.

By T. PERCY C. KIRKPATRICK, M.D., Fellow and Registrar, Royal College of Physicians of Ireland. Dublin: University Press. 1925. Pp. 23.

THIS work is an address delivered by Dr. Kirkpatrick in the Royal College of Physicians of Ireland on the occasion of the 300th anniversary of the birth of John Stearne, founder of the College. Stearne was born on Nov. 26th, 1624, at Ardbraccan in the house of his grand-uncle, James Ussher, then Lord Bishop of Meath, who was translated in the following year to the Archbishopric of Armagh. Stearne entered at Trinity College, Dublin, in 1639, at which date the studies were arts, philosophy, and the superior faculty of theology. In 1641 occurred the Irish Rebellion, when the Provost of Trinity fled to England accompanied by some of his students, among whom was Stearne. Ussher, who, we regret to say, was then residing in England, gave Stearne an introduction to Samuel Ward, Master of Sidney Sussex College, and in 1642 Stearne matriculated as a pensioner and in 1646 graduated as Master. In 1643 Cambridge came under the heavy hand of the Parliamentary Commissioners and Ward was ejected and imprisoned. Stearne remained under Ward's successor, but in 1649 went to Oxford in the train of Seth Ward, a cousin of Samuel Ward, who was incorporated at Wadham College and made Savilian Professor of Astronomy. Stearne retired to Bedfordshire, and in 1651 we find him, by an Order in Council, made a probationary Fellow of Trinity College, Dublin. Next year he was made a regular Fellow and started medical practice in Dublin. Where he had obtained any medical training is not clear, but presumably it was at Cambridge. The founding of the College of Physicians was upon this wise. In 1604 the corporation of Dublin had put up a building on the site of the present Trinity-street as a Bridewell "for putting idle persons to work." Sundry difficulties between the builder and the corporation led to the building being handed over to Trinity College for a school house, or rather a hostel for students. More difficulties arose as to possession and other matters, and eventually Stearne obtained leave from the Fellows to use the hall as a College of Physicians, he to live there and to be responsible for the expenses of repairs and upkeep. This was in 1651, and in 1667 Stearne obtained a charter from the King naming himself President and associating 13 other doctors of medicine as Fellows. Two of these Fellows had most unusual names, the one Samuel Sciclamore, which we imagine to be a variant of the name Siclemore, and the other with the still more grotesque name of John Unmusique. Two years after the granting of the charter Stearne died, and with the end of his life ends Dr. Kirkpatrick's most interesting address.

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FLOWER SCENT.

By F. A. HAMPTON, M.A., B.M., B.Ch. Oxon. London: Dulau and Co. 1925. Pp. 133. 6*s.*

THE particularly emotional effect of the sense of smell has long been recognised, and it is common to find that the recall of a smell will conjure up a scene or an episode in a more prompt and definite manner than any recollection of a sight or a sound. It is therefore a loss to exact scientific writing or psychological assertion that no one has yet been able to think out a categorical nomenclature of smells, so that odour can be written and spoken of in the same way that may be employed with regard to what is seen or heard. The effect of sounds can be estimated up to a point in respect of their loudness by arranging a scale of distances, and visual appreciation up to a point can be gauged in a similar way. True, the standards thus arrived at are only general, and when an actual impression has to be conveyed the personal equation counts for much, but none of the parties in any discussion know what they are talking about. When smell is concerned, however, an actual vocabulary fails us in ordinary life, there being no common acceptation of any classification under which smells can be arranged. The sense of smell has been the least cultivated of the senses, and it is just possible that, if the subject had received the same attention as hearing and sight, the classification of odours would have reached a higher scientific plane though it suffers from the absence of the mathematical analysis which can be employed in optics and acoustics.

Dr. Hampton, dealing with the odour of flowers and their leaves, and taking into consideration its purpose and relation to man, has gathered together many interesting theories and facts with reference to the various scents of plants and presents them in a simple and coherent way. Pointing out that the scent of flowers and of most leaves is usually due to odorous volatile matter, he preludes his classification by chapters on the chemical composition of the active substances which produce scents, and their development and distribution as such. He quotes Count Kerner von Marilaun's classification made over 20 years ago, and points out the directions in which this is unsatisfactory, later chemistry having proved it to be partially unsound; and he proposes a modified classification, which he calls tentative and rough, but which will prove very interesting not only to lovers of flowers but to medical men. For many of us must at different times have been embarrassed in the attempt to find an adjective which suits an odour. The book, though small, is the result of wide reading to which references are given throughout at the close of each chapter.

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NEW VERSE.

By ROBERT BRIDGES. Clarendon Press. 1925. Pp. 88. 6*s.*

THIS is a slender volume by the Poet Laureate, who is also a physician, as we are all proud to remember. It is composed of verse written in 1921 including a few earlier pieces, and a short preface explains the arrangement according to which the author has grouped what he calls "the distracting variety of this booklet." The poems in the first section are in Neo-Miltonic Syllabics, and the section is intended to make appeal to the advocates of free verse so that rigid scansionists must not expect to find it easy to make the right number of syllabic stresses. The second part is in Accentual Measures, concerning which controversy has now died down. Part III. presents no technical difficulties of metre to the ordinary reader, and for that reason will contain favourites for most of us; we can all understand from one poem or another how Dr. Bridges exercises his charm and to the close reader there will become apparent how far that charm depended on "the glow of a fire that burned steadfastly within." Part IV. consists of three short pieces, a translation from "Sappho," a pessimistic ode to Sir Thomas Barlow, and a vigorous denunciation, inspired by Catullus, of

"a filthy skunk amongst us,
A rank musk-idiot, the filthiest skunk."

Our medical Poet Laureate is not afraid of speaking his mind, but we wish he had not been moved to bracket his two predecessors in official bardery, for identity of Christian name is the least possible form of common denominator.

# Reports and Analytical Records.

## BACTOL MORGENSTERN.

(E. H. SPICER AND CO., 72, WIGMORE-STREET, LONDON, W. 1.)

THIS is a thick white emulsion with a faintly sweet flavour, the bottle containing 12 oz. When analysed the emulsion was found to contain 52 per cent. of heavy petroleum, a very small quantity of agar, and probably a trace of saccharin. The remaining 47–48 per cent. was water.

*Bacillus acidophilus* is said to be present (over 250,000,000 per c.cm.); it grows freely in alkaline media, the end product being lactic acid. It is claimed to create in the intestines a hydrogen-ion concentration which is antagonistic to the development of putrefactive bacteria. Whilst *B. bulgaricus* cannot establish itself in the intestinal tract and soon dies off, *B. acidophilus*, being a native of the bowel, rapidly re-establishes itself and multiplies freely in its normal habitat. Bactol presents the *B. acidophilus* in a stable form as it contains sufficient agar to maintain the viability of the bacilli and air is excluded by the petroleum. Bactol is thus superior to acidophilus milk and other cultures, which quickly spoil. It has the further advantage of obviating the necessity for the administration of large amounts of fluid preparations in order to attain "acidophilisation" of the intestinal tract.

## ANTIPHLOGISTINE.

(DENVER CHEMICAL MANUFACTURING CO., NEW YORK CITY, U.S.A.)

The tin of antiphlogistine examined contained 10·5 oz. of a slightly aromatic pasty mass with a faint brown colour, which is used as an external application for inflammation and congestion. It is claimed to be a perfectly harmless, non-irritating, non-toxic dressing with hygroscopic and indirectly anodyne properties. It is always ready for use, and maintains its properties under any climatic conditions. When analysed it was found to consist of 55 per cent. of inorganic matter of an argillaceous character. This was associated with glycerine, boric acid, and traces of iodine. The aromatic oils of peppermint, eucalyptus, and gaultheria are also said to be present. Antiphlogistine is a carefully prepared material, and is of undoubted use as an external application in a great variety of inflammatory conditions. Owing to the glycerine present, it keeps the tissues in a moist condition, and its antiseptic properties enhance greatly its general usefulness.

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London, W.C.1.

Telephone: MUSEUM 4029
Telegrams: "AMPSALVAS, LONDON."

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MEDICINE.

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has been divided and the evidence has necessarily taken the form of a compromise, where the ayes and *the noes can agree with each other over many portions* of the dividing line. It has become clear that on the side of the Approved Societies nothing has been put forward justifying a clear demand for drastic procedure. The introduction of a wage-limit as a test for suitability to receive medical benefits is another great subject which has not been definitely settled. Before the war the difficulties of applying any practical income-limit *for manual workers* were *found insuperable*, and *from* the proceedings before the Commission it would seem hardly likely that the Insurance Acts can be revised immediately so as to apply an income-limit for manual workers, who constitute the vast majority of the insured population; while as far as dependants of the insured are concerned at the present time it is not, we believe, in the region of practical politics to attempt such a development. Wholesale admission of dependants is impossible, and we must remember where any partial treatment of the subject might lead. Here are two great questions which concern a substantial portion of the medical profession personally, and which deeply affect the ideals of all. They remain for settlement while many lesser matters have settled themselves. As a definite development in the whole Service allusion may be made to the culmination of a series of negotiations with the Ministry of Health under which there has now been drawn up a list of 600 practitioners throughout the country who are regarded as ophthalmic specialists, and who are willing to treat insured persons at a uniform fee of a guinea to cover each case of refraction. These points in the deliberations of the Royal Commission on National Health Insurance are singled out for mention as proving the comprehensive and also the detailed manner in which the inquiry is being held, and as showing that, while from time to time there may be no particular progress to be registered, vital changes of heart may be observed in the *mutual* attitude towards each other of the State on the one hand, and on the other of the beneficiaries and the executive under the National Insurance Acts. To appreciate this forms a gratifying result of stocktaking.

Looking along the developments of National Health Insurance, to see how far past experience and accomplishments indicate the more urgent work ahead, it becomes sufficiently clear that the *time has come* when the relation between medicine and the public should be better understood; for where clear explanations of medical ideals *can be framed* a great deal of public criticism will be obviated, to the immense benefit of the country. We have always considered *it* a fine testimonial to the influence of medicine that day by day the medical side of common affairs makes more frequent appearance in the public *comments* of the press and in the conversation of men and women. While it must be the policy before the medical profession to ensure *that* the conditions of medical practice should be such that the nation can obtain full scientific value from our efforts, the fact should be *openly* admitted that in many directions medicine is prepared to delegate technique, while retaining that general authority which is *conferred* upon practitioners by a course of arduous training guarded by stringent tests. During the close of last year the lay newspapers gave *evidence that*, while the public was prepared to acknowledge the development of medical science, it resented what it considered to be an *attempt* to reserve to qualified practitioners forms of treatment ancillary to medicine which could be rendered as well by the unqualified. Much of this criticism was misdirected owing to the complete misunderstanding, not only of medical ideals, but of the Acts of Parliament under which the profession of medicine is carried on. But, as we have said above, the medical profession has always had similar difficulties to surmount; it is a proof of its development that they should manifest themselves in various forms, and of its vitality that progress has been steadily maintained as the barriers of prejudice have been removed.

## THE OVARIAN HORMONE.

THE historical aspect of researches upon the ovarian hormone is of considerable interest; those who search carefully among the mass of material published on the subject will find that a great deal of accurate scientific work has been done. That the ovary is connected with secondary sexual characteristics has been known for hundreds of years, but it was not until the end of the last century that substitution therapy was attempted. **THEODORE LANDAU**[1] was the first to administer ovarian preparations by the mouth to patients who had been subjected to the operation of oöphorectomy. It is a striking fact that **LANDAU** never attempted to control his observations by animal experiments; in fact, 12 years of solely clinical research elapsed before **ADLER**[2] published an account of his animal experiments. In 1912 this observer stated that by injecting watery extracts of ovaries into animals he was able to produce all the symptoms of natural œstrus. From 1912 onwards a whole series of papers appeared on the subject, but it was obvious that the difficulties of standardisation were very great indeed. The methods used for this purpose consisted in injecting normal or spayed animals, and noticing the onset of signs of œstrus, such as enlargement of the genitalia, and symptoms of rut. The preparation of the active material had reached a very high pitch by 1915 **ISCOVESCO** (1912)[3] first suggested the use of alcohol as an extractant, and **FELLNER**,[4] **SEITY**, [5]**WINTZ**, and **FINGERHUT**[5] carried on this line of work. Undoubtedly the finest piece of research on these lines was that done by **HERRMANN** and **FRÄNKEL**[6] in 1915. These workers evolved a very sound method for the preparation of the product, and controlled their work by careful animal tests. The method consisted in a preliminary extraction of the ovaries with alcohol, and this solution was evaporated down. The solid residue was extracted with ether, and the phosphorus and nitrogen containing lipoids were precipitated from this solution by the addition of acetone. The final oily product was obtained by evaporating this solution to dryness. **HERRMANN** and **FRÄNKEL** studied the chemical and physiological properties of this substance very fully. Their brilliant researches lay dormant in the literature until 1923, when **ALLEN** and **DOISY**[7] fully confirmed the greater part of **HERRMANN** and **FRÄNKEL'S** claims. They were able to check their results much more accurately than **HERRMANN** and **FRÄNKEL**, since they adopted the method of **STOCKARD** and **PAPANICOLAOU**[8] for diagnosing the onset of œstrus. This consists in noting the alteration in the cell picture of vaginal smears during œstrus. **ALLEN** and **DOISY**, using a method almost identical with that of **HERRMANN** and **FRÄNKEL**, succeeded in producing artificial œstrus in their test animals. The former hold the view that the active principle is located solely in the Graafian follicles, and not in the stroma of the ovary.

**DICKENS**, **DODDS**, and **WRIGHT**[9] have repeated the work in this country, and have succeeded in confirming the observation that active material can always be obtained from fresh ovaries. The method of preparation used by them consists of slight modifications of those employed by **HERRMANN** and **FRANKEL**, and **ALLEN** and **DOISY**.

Pigs' ovaries were used as the main source of supply. The minced tissues were extracted with twice their weight of alcohol, care being taken not to lose any fluid during mincing. After stirring, the mixture was pressed out in a hand press through jean, and the solid material was then extracted in a Soxhlet apparatus with alcohol for 6–9 hours. The alcoholic extracts were then combined and filtered through Chardin papers. The filtrate was evaporated almost to dryness in vacuo, and the residue was taken up in a small volume of alcohol and filtered. On standing, a precipitate of fats and cholesterol separated which was removed by filtration. The solution was again taken down to dryness, and the residue was dissolved in a small quantity of ether, and twice its volume of acetone was added. The precipitated lipins were filtered off. The solid material was then redissolved in ether and again precipitated with acetone. This process was repeated several times. The filtrates were then combined and evaporated to dryness. The residue was dissolved in a small quantity of alcohol, and some cholesterol was removed by freezing. By repeating this process, it is said that the greater part of the cholesterol can be removed. The final product is obtained by distilling off the alcohol in vacuo.

Of a series of commercial preparations tested by **DICKENS**, **DODDS**, and **WRIGHT** all proved inactive. One specimen of whole ovaries, dried at 40° C, was found to yield 150 rat-units per kg. by the above method of extraction. The active principle consists of a clear, light brown oil, readily soluble in alcohol, ether, acetone, and olive oil. It can be heated to 200° C. without loss of activity. It withstands saponification only to a limited extent. The ovarian extracts made were standardised by the method used by **ALLEN** and **DOISY**—i.e., by determining the minimum amount which will bring about artificial œstrus in oöphorectomised adult animals as judged by **STOCKARD** and **PAPANICOLAOU'S** smear method. Rats were used almost exclusively. The extracts were injected subcutaneously, dissolved in olive oil or suspended in weak bicarbonate solution. If the extract was active, œstrus appeared sometimes after 24 hours and usually within 36 hours of the time of injection. The responsiveness of the animals was found to wear off with the lapse of time after oöphorectomy and larger doses became necessary for the production of œstrus. Thus 12 mg. of a liquor folliculi extract produced definite œstrus in a freshly spayed rat, while 50 mg. produced only slight pro-œstrus in a rat spayed three months previously. It must be remembered that three months correspond to 30 œstrous cycles in the rat, which is equivalent to two and a half years in the human female. After three months the genital organs of oöphorectomised rats are very thin and resemble fibrous cords. The effect of the preparation was also tested upon a female monkey; 100 mg. were injected subcutaneously, and within three days typical menstruation commenced. That this response was not the onset of a normal period was excluded by previous observations upon the animal. In a series of experiments in which the extract was administered by the mouth to oöphorectomised rats, œstrus could not be induced even when very large doses were given. By means of a series of injections an oöphorectomised rat was kept in a state of continuous œstrus for a period of 14 days. DICKENS, DODDS, and WRIGHT were unable to support the theory of ALLEN and DOISY that in the ovary it is only the liquor folliculi that contains the hormone. They also describe experiments to show that the active principle inhibits the blood-sugar lowering effect of insulin to a fair extent.

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[1] Landau, T.: Quoted by Novak, E., Endocrinology, 1922, vi., 599.

[2] Adler, L.: Arch. f. Gynäk., Berlin, 1903, lxviii., 438.

[3] Iscovesco, H.: Compt. Rend. Soc. de Biol., Paris, 1912, lxxiii., 16.

[4] Fellner, O. O.: Arch. f. Gynäk., Berlin, 1913, c., 641–719.

[5] Seity, L., Winty, H., Fingerhut, L.: Münch. med. Woch., 1914, lxi., 1657, also 1734.

[6] Herrmann, E., Fränkel, S.: Monatsschr. f. Geburtsh. u. Gynäk., 1915, xli., 1; and English Patent 113,311, Feb. 13th, 1918.

[7] Allen, E., Doisy, E. A.: Jour. Amer. Med. Assoc., 1923, lxxxi., 819.

[8] Stockard, C. R., Papanicolaou, G. N.: Amer. Jour. Anat., 1917, xxii.,

[9] Dickens, F., Dodds, E. C., Wright, S.: Biochem. Jour., 1925, xix., 853.

We have, therefore, two independent confirmations of the work of HERRMANN and FRÄNKEL, and it will be interesting to see how long it will take before active material appears on the market. Experiments of the observers already mentioned have conclusively shown that (*a*) fresh ovaries alone will yield active material, ordinary dried specimens being useless unless specially treated; and (*b*) the preparation is quite inactive when given by the mouth. In view of these findings, the inconclusive and contradictory results reported as to the therapeutic value of ovarian extracts given by the mouth are not surprising. Such success as has been recorded from oral administration of these extracts is presumably due to some other cause. The large-scale production of standardised active extracts will now be awaited by gynæcologists and physicians with eagerness.

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## THE BRITISH SOCIAL HYGIENE COUNCIL.

THE year which has just closed has seen the National Council for Combating Venereal Diseases launching out on a broader programme of preventive education under a new name, thus bringing Great Britain into line with the Dominions, the Colonies, and the United States, where social hygiene councils already exist. When the National Council was established in 1914 there were certain reasons which led to the choice of the original name. The press as a whole never mentioned the words "venereal disease" and the public generally was ignorant of its heavy burden of preventable disease; nor were there more than the scantiest facilities for free treatment. It was necessary, therefore, to secure that infected persons should seek treatment and be able to obtain it easily. As far as publicity and the provision of treatment are concerned, the National Council has achieved its ends, and it is now considered desirable to attack the problem by widespread educative propaganda. This it is thought, no doubt with justice, will be more easily accomplished under the new title.

It would have been an encouraging start for the new campaign thus instituted if fusion between the National Council and the Society for the Prevention of Venereal Disease could have been brought about. A liaison committee of the two organisations, however, failed to agree upon the question of advertisements in chemists' shops, and the Society for the Prevention of Venereal Disease decided that fusion would be impracticable. However, alternative means of coöperation have been devised and a permanent liaison committee, consisting of five members of the executive committee of each organisation, has been established to take such joint action as occasion suggests. Further, Sir AUCKLAND GEDDES, who was already President of the Society for the Prevention of Venereal Disease and had been chairman of the liaison committee, has accepted the presidency of the British Social Hygiene Council. An example of the coöperation now existing between these two organisations is seen in certain negotiations which have been proceeding during the year between them, acting jointly, and the Ministry of Health on the question of the chemist's shop. These relate to the sale by properly qualified chemists of disinfectants and instructions for use approved by some competent authority. The liaison committee urged that this should be allowed, but that display of prophylactic packets should be forbidden and that the only advertising allowed should take the form of an approved notice in chemists' shops where disinfecting materials are on sale. The difficulty immediately arising from these proposals, as pointed out by the Ministry of Health, is the question of the "competent authority" necessary for the satisfactory working of any such scheme. The Ministry itself will not act and the Medical Research Council will not undertake the work. The liaison committee had suggested that the Society of Medical Officers of Health should be approached, but this was also open to various objections, and it was agreed by all parties to be impracticable. The problem of the provision of a competent authority is therefore still to be solved, but it is a great step forward that the two organisations which have so long taken different views have been able to agree upon the recommendation of a single policy, and it is possible that the outcome of the negotiations will be a joint recommendation by these two bodies of persons to constitute the competent authority.

The work already accomplished by the National Council is summarised in its tenth annual report, just issued. It is gratifying to see that the number of new cases of syphilis presenting themselves annually for treatment has fallen since 1920 from 42,000 to 22,000. Since the number of attendances at the centres has actually increased, this probably does represent a real diminution in the number of fresh infections. On the medical side, therefore, the attack on venereal disease is progressing satisfactorily, but, as Sir AUCKLAND GEDDES said in his presidential address, "no mere medical attack on venereal disease will ever of itself achieve victory." The social and moral problems involved also call for solution. Many "health weeks" and other public health campaigns now make use of the Council's propaganda, and one important feature of the wider programme now adopted has been the appointment of a social hygiene committee, which includes prominent biologists, psychologists, and educationists to advise the Council on the preparation of a syllabus of lectures to cover the wider field. With the aims and objects now set out and the wide educative programme contemplated all workers in the field of preventive medicine will be in sympathy, and the fresh activities of the Council under its new title will be watched with interest.

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WE regret to announce the death in London, on Dec. 28th last, of Dame Louisa Aldrich-Blake, senior surgeon to the Elizabeth Garrett Anderson Hospital, and since 1914 Dean of the London (Royal Free Hospital) School of Medicine. Miss Aldrich-Blake was a pioneer among women surgeons; she was the first woman to obtain the M.S. degree of the University of London and to hold the post of surgical registrar to the Royal Free Hospital. She was in her sixty-first year.

# Annotations.

"Ne quid nimis."

## ATMOSPHERIC POLLUTION.

THERE are now 48 stations in the British Isles at which the monthly deposit from the atmosphere is measured, and their records for the year 1924–25 may be found in the Eleventh Annual Report of the Advisory Committee to the Air Ministry on Atmospheric Pollution.[1] Compared with the average of the previous five years there is a slight improvement; for example, out of 33 stations for which full results are available, the total deposit was below the average in 21 and above it in 12, whilst the deposit of tar, which is a smoke product, was considerably reduced as compared with the average. Sulphates, one of the most injurious parts of the deposit, showed a slight reduction, and at 18 stations out of 30 there was less of them than usual. The largest amount of tarry matter was in Newcastle-on-Tyne, which also had the highest tar deposit for the five years' average. The figure given for annual solids falling on a London area corresponds to 461 English tons of material per square mile, and an interesting feature of the report is a discussion of the ætiology of the celebrated fog which is more or less affectionately called "the London particular." Experiments in London and the suburbs have shown that its development is due rather to the replacement of water particles by smoke than to the dirtying of the particles themselves. In the suburbs a dense fog contains a large amount of water and little smoke, but in London the water droplets are reduced considerably in number and are replaced by soot. This conclusion is important because it proves that London fogs are not (as is so often assumed) a natural visitation which it is beyond the power of man to prevent. The fact seems to be that in the absence of soot to take the place of water there would be less natural fog in London than in the surrounding country, since the air over the city is warmer than elsewhere, and therefore the water particles which cause ordinary fog tend to evaporate. One of the special features of the report is a chart of results obtained in London which brings out the effect of wind on the concentration of impurity and shows that the concentration is inversely proportional to the wind velocity. Wind velocities below two miles an hour in winter are often accompanied by dense smoke hazes. Several methods employed in measuring dust have recently been described in our columns,[2] and an account has been given of that devised by Dr. J. S. Owens. The report contains some interesting observations made by Dr. Owens with his instrument—the jet dust counter—at the mouth of the St. Lawrence River and in Southern Portugal. The air in both of these situations contained little but crystalline salt particles, which are hygroscopic and begin to form fog of liquid drops before the air becomes saturated.

## THE EVACUATION OF SICK BY AEROPLANE.

IN their campaigns in Syria and Morocco the French have had to develop the transport of sick and wounded by air, and have gained much experience of what is now almost an essential service wherever casualties have to be evacuated from beleaguered garrisons or from posts on bad roads, in sequestered valleys, or on the other side of high mountains. In Morocco, where there have been over 11,000 French casualties during the year of fighting, the conditions have demanded the fullest possible use of aircraft under war conditions; but the use of air transport for carrying sick is also necessary in a country like Iraq, which is held, so to speak, from the air. British experience is by no means inconsiderable, as is shown by a contribution by Wing-Commander H. A. Treadgold, R.A.F.M.S., to the November issue of the *Journal of the Royal Army Medical Corps*, in which the achievements of the two countries are reviewed. Invalids from Iraq, he states, are now evacuated from Baghdad to Cairo in two days by air instead of in three or four weeks by steamer. The ambulance travels with the air mail, so that help may be available in case of accident, but no mishap has yet occurred amongst the 3000 cases moved. In the spring of 1923 198 cases of diarrhœa and dysentery were transported over the Aghdir Mountains from Suleimania (in the vilayet of Mosul) to Kirkuk—a distance of 100 miles direct, but at least 150 miles by road. The roads were poor, and on ponies the journey would have lasted a week, but the single transit by air was over for each patient in two hours. The cases were carried in Vickers-Vernon troop-carriers, which can take about ten men, with two stretcher cases. This means of transport is uncomfortable but swift, and the machines are available from ordinary troop-carrier squadrons. In addition to these, two other types of machine are available. In an emergency single cases can be carried quite comfortably by two-seater aeroplanes in Neil Robertson stretchers; they are wrapped up in special warm coats and strapped to the gun-ring and the outside of the fuselage. And there are now coming into use special ambulance aeroplanes (with larger engine-power, larger cabin, wireless, oxygen, body-warmers, and a w.c., with tank for dejecta), each of which will take two lying and four sitting cases. These will be drawn from special ambulance squadrons to be formed. To facilitate the evacuation of casualties the French troops make suitable landing-places immediately they occupy a new post, and this is very important. The best pilots are wanted for the service, but it is unpopular with them; they would rather be fighting. In order to combat this feeling the French Higher Command have put photographers, bombers, and pilots of medical aeroplanes on an equal footing for rewards. Good liaison is another essential factor. Pilots choose, in relation to weather and trip, a particular time for starting, and they cannot understand the unavoidable delays of medical officers, who in their turn fail to appreciate the reasons for the starting-time being so definitely named. This state of affairs seems to call for an Air Force embarkation medical officer and a small hospital close to the landing ground to receive and hold cases for embarkation.

## EMBRYOLOGICAL MATERIAL.

THE importance of embryology and of the study of intra-uterine changes, both in the fœtus and in its surroundings, and the bearing of these details of development on problems of pathological interest, are matters that are being gradually realised within the medical profession. What is not realised, perhaps, is the possible greatness of the importance. The ordinary courses in embryology which are prescribed for the student would be laughable in their inadequacy if it were not that they give him, at any rate, reason for knowing that the human body is not a preformed thing, fixed from the beginning, but must bear within itself certain inherited qualities and their stigmata, so that when he has to consider some pathological problem he may perchance remember that there are other questions behind those arising in the post-mortem room and pathological laboratory, and this may lead him to seek for authoritative information about them. It is here, unfortunately, that he is very likely to find himself at a loss. There are problems in development that have never been touched and others that have hardly been considered at all. Human organogeny has been worked out with fair accuracy and completeness in its broader aspects, but the finer points and the interplay of factors in the production of results, and the nature of the factors themselves, are still to be done, and it is here rather than in the larger matters that pathology will be looking for help. To give a simple example.

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[1] Annual Report for the Year ending March, 1925, of the Advisory Committee for the Investigation of Atmospheric Pollution. Published by H.M. Stationery Office. 5s. 6d.

[2] THE LANCET, 1925, ii., 712.

of the differences referred to, the known stages of formation of the palate afford an explanation of the anatomical situation of the fissure, but not of the cause of a cleft palate. Here we want information on the factors which cause full growth of the maxillary process and on the causes of its failure in growth, and about these we know nothing. Such matters, more abstract and intricate, which do not come within the purview of the ordinary student, can only be slowly solved by those who devote their time to research of this sort, and they must depend for their material on the clinician, who alone is in the way of obtaining it. For this reason we should specially direct attention to the letter from Prof. J. P. Hill in our last issue. Embryologists can obtain specimens at all stages from most animals, but for human embryos they are forced to rely on the help of their practising colleagues. Much of the material procured in this way is abnormal, but that need not deter the practitioner from sending it, for the skilled study of abnormal formations may often throw light on dark places; it is of much more importance that its histological characters are fairly good, whence the attention to preservation asked for in the letter. The study of human embryology in England has hitherto depended on the use of private collections, and it is well to aim at the formation of a large and representative gathering of specimens, in which the help of the practitioner is essential, and surely will not be withheld.

## ENCEPHALOMYELITIS AND DISTEMPER.

RENEWED attention has of late been directed to lesions of the central nervous system in connexion with canine distemper. A meningo-encephalomyelitis was described in 1908 by Batten and Holmes in canine chorea—a recognised sequela of distemper—and subsequently a number of writers have confirmed and elaborated their description. Dexler had already drawn attention to changes in the brain less definitely associated with distemper. In 1923 and 1925 Kantorowicz and Lewy described the histological features of nervous distemper, and especially drew attention to the occurrence of groups of small bodies in the brain and cord, which they regarded as parasites and to which they attributed the morbid condition. These bodies are undoubtedly from their descriptions of the same nature as those which Craighead and Wright found in the brain of rabbits, and which have since been found in the brain and kidneys of rabbits and mice, and were called by Levaditi *Encephalitozoon cuniculi* and regarded by him as a form of microsporidium and the cause of an encephalitis. Manouelian and Viala found somewhat similar forms in the brain of man and animals dead of rabies, and believed them to represent the virus of that disease. The nature and pathological significance of these bodies is still under consideration. In the September number of the *Buffalo General Hospital Bulletin* Messrs. Benjamin Roman and Chauncey M. Lapp record the finding of inflammatory changes similar to those found by Batten and others in the central nervous system of 19 out of 29 cases of distemper (27 dogs, 1 cat, and 1 fox). In two or more of these 19 cases the clinical states were merely catarrhal, and nervous symptoms were absent. They suggest that a thorough search would reveal the typical lesions in the brain and cord in all cases of distemper. The changes which they described were very widely spread and patchy in distribution. They consisted chiefly of a lymphocytic effusion sheathing the small vessels and in some places surrounding the altered large motor nerve cells. The account given of the lesions in comparison with those of other forms of acute non-bacterial infective encephalomyelitis — e.g., encephalitis lethargica, herpetic encephalitis, poliomyelitis, Borna's disease and rabies—suggests that the histological changes in this group are very similar in kind, and are to be distinguished mainly by differences in their regional distribution and intensity. The last-mentioned authors regard the inflammatory changes as characteristic of distemper and probably constant in the different forms (catarrhal, intestinal, and nervous) of this disease. It may, however, be doubted whether, in the light of the recently discovered widely spread occurrence of similar lesions in several different kinds of animals, it is wise definitely to decide on the unity of a disease to which are attributed so great a variety of symptoms, until the experimental results of inoculating a purified or cultured distemper virus have been fully studied.

## WATER-SUPPLY AND CHLORINATION.

AT a recent meeting of the Public Works, Roads, and Transport Congress, Mr. I. G. Gibbon, Principal Assistant Secretary, Ministry of Health, recommended local sanitary authorities, at any rate the larger ones, to have a policy of water-supply in general outline for 50 years ahead, and a detailed programme for 20 years. In areas where neighbouring authorities had a common interest, either in the source or in the supply of water, he suggested the appointment of regional committees to ascertain the needs of all parties and how these needs could best be met, leaving the actual decisions to the constituent authorities. At the same congress Sir Alexander Houston regretted the tendency of large towns to fight for the possession of far distant gathering grounds for water impounding purposes, irrespective of the needs of their neighbours or of the country as a whole. A map of England and Wales showing the appropriated gathering grounds and the far distant towns supplied from them would, he said, make a startling picture and an alarming one from the point of view of those who have not made adequate provision for the years to come—"the unwise virgins of the water world." This rush for the uplands arose from the wise belief that it is better to drink a water which requires no purification than a water which has been purified by artificial means to a high standard of perfection. But the matter is really pressing, for although much can be done to prevent waste the consumption of water is continually increasing owing to the increased use of water for baths, lavatories, and washing operations in general. Sir Alexander Houston therefore contemplates the necessity soon arising of utilising for domestic purposes waters of doubtful origin, and he supports his view by considerations such as these:—

1. The interpretation of the results of the chemical and bacteriological examination of waters has radically changed within recent years.

2. Great progress has been made in the methods of rendering impure waters apparently safe to drink.

3. We have ceased to be obsessed by purely sentimental considerations.

4. Our administrators are more alive to the advances in science, and less inclined to be bound down by past traditions.

5. Over one-seventh of the population of England has been, and are, drinking with impunity, highly purified water derived from sources of questionable origin. This may be described as a physiological, or pathological, experiment on a vast scale.

6. If the absence of *B. coli* from a water is to be taken as implying the absence of the microbes of water-borne disease this organism can be practically eliminated by storage and filtration, and, if chlorination processes are super-added, absolutely destroyed.

7. There have been cases abroad where the addition of chlorine to impure water, which had previously been responsible annually for an enormous amount of disease and death, has resulted seemingly in the almost complete elimination of water-borne diseases.

If on this evidence the need for special purification processes is accepted, a little booklet just issued in a fourth edition entitled "Water Sterilisation by Gaseous Chlorine" will be found of considerable value. The Paterson Engineering Company which issues it has been responsible for large installations both in this country and abroad. Such questions as super-chlorination and de-chlorination, taste problems, chloramine sterilisation, disinfection of swimming-bath water, treatment of condenser cooling water, control tests of treatment, and the like are lucidly dealt with. The importance of duplication of essential machinery, a point too often overlooked, is strongly advocated. An emergency may readily arise in which a previously safe supply becomes suddenly polluted and unsafe. It is satisfactory to learn from the booklet that it is possible within 24 hours to have a chlorine apparatus installed and in working order. Solution of the chlorine in a minor body of water before addition to the main supply requiring treatment is the method advocated; this is much to be preferred to the addition of gaseous chlorine to the water through porous diffusers. Authorities contemplating chlorination, and their number increases daily, will benefit by the perusal of this little book.

## ARSENIC IN APPLES.

SEVERAL Hampstead tradesmen were recently prosecuted for selling Jonathan apples containing arsenic in quantity sufficient to cause complaint of illness after ingestion.[1] The Ministry of Health has now addressed a circular letter (No. 650) to authorities administering the Sale of Food and Drugs Acts, stating that the attention of the Minister has been drawn to the presence of considerable quantities of arsenic on the surface of certain imported apples. The circular continues:—

> Two cases of arsenical poisoning have been traced to the consumption of imported Jonathan apples, and a number of samples of these apples which have been examined have shown various amounts of arsenic ranging up to one-tenth of a grain per pound. The contamination of apples by arsenic has been occasionally reported for a number of years, but the quantities of arsenic found by analysis on former occasions have generally been insignificant, and until recently no cases of illness have been traced to the consumption of such apples. The amount of arsenic is liable to be especially large in apples grown in dry foreign climates where the apples are repeatedly sprayed during growth and the rainfall is not sufficient to wash off the deposit.

The Minister adds that importers of apples from the regions concerned are taking such steps as are possible to secure the removal of the contamination from future consignments, but he urges upon local authorities the necessity, especially during the next few weeks, of making full use of their powers under the Sale of Food and Drugs Acts, the Public Health Acts, and the Public Health (Imported Food) Regulations to protect the public by the examination of samples of apples likely to be affected and by arranging for the withdrawal from sale of apples which are found to be dangerously contaminated.

## SEXUAL OFFENCES AGAINST YOUNG PERSONS.

THE Departmental Committee appointed by the Home Secretary in July, 1924, to collect information as to the prevalence of sexual offences against young persons and to report upon any direction in which the law or its administration might be improved, has issued a report[2] which deserves close study. The Committee's 43 recommendations, which we print in another column, range over a wide area. Detailed discussion of them is impossible within brief compass, but we may at least draw attention to certain points of direct interest to the medical profession in Section 6 of the report (Matters Relating to the Offender), from which arise Recommendations 27 to 32. The Committee was pressed by not a few witnesses to advocate mental examination of all sexual offenders. There was, however, ample evidence of the great variety of the types of offenders, and, notwithstanding a common popular view to the contrary, there was no conclusive proof that most of such offenders are insane or mentally defective. The Committee took 200 examples of men certified in prisons as mentally deficient, and found that 50 of them were undergoing imprisonment for sexual offences. Conversely 108 examples were taken of men remanded to prison for indecent assault, incest, and carnal knowledge (the offences in all these cases being against young persons under 16), and none were found who could be certified as insane, while only 8 were certifiable as mentally defective. But there is one form of offence—namely, indecent exposure of the person—in which the proportion of mental instability is demonstrably high. Thus of 150 men remanded to prison for this particular offence 14 were found to be insane and 24 were certifiable as mentally deficient. Impressed by this comparatively large proportion, the Committee recommends that all persons convicted of indecent exposure should undergo mental examination. Further evidence failed to prove that sexual offences against the young are committed, as a rule, by habitual offenders, except in the case of indecent exposure, and except, to a lesser extent, in the case of indecent assault. In one large town, the report states, out of 77 men accused of sexual offences against persons under 16, only 5 had been previously convicted on similar charges. The Committee suggests that in this minority of cases of repeated offences, and also in any case where mental disease or defect is suspected, the offender's mental condition should be examined as already proposed in cases of indecent exposure. It recommends that the mental examination should be made by a mental expert upon a remand after conviction, and that the bench should act in accordance with the result of the examination. Only a few county or borough courts at present have the advantage of the services of a mental expert. It usually happens that the court has to rely upon the help of the local police surgeon or prison doctor who—although in most cases his assistance has been conspicuously valuable—has not always specialised in mental work so as to be an expert in mental disease. The Committee recommends that, when courts are not in a position to have the full-time services of a mental expert, arrangements should be made, without setting up new machinery or multiplying personnel, for the medical superintendent of the county or the borough mental hospital, or for the medical officer of the Mental Deficiency Act Committee, to serve as mental expert to the courts in the district. Another useful recommendation is one which THE LANCET supported some months ago,[3] when it was advocated in the report of the Prison Commissioners. It is that the Mental Deficiency Act should be amended by the elimination of the words "from birth or an early age." These words are an obstacle to proper certification. A case was mentioned in which a man had 50 convictions for indecent exposure, and was said by the local authorities to be a moral imbecile of hopeless character addicted to annoying school-children. Yet, because the doctors could not trace evidence of his mental history at an earlier age than 25, they could not certify him, although they knew him to be now and for many years past a proper subject for certification.

In general the Committee deprecates punishment of sexual offenders by way of fine; it considers probation sometimes suitable when fine is not; it declines to express an opinion on the time-worn but still vigorous controversy of whipping as a deterrent, and it concludes that imprisonment is the most suitable penalty in the majority of cases. It comments sharply upon the inadequacy of some sentences upon sexual offenders as contrasted with far heavier sentences awarded for offences against property. Where, as the result of mental examination by an expert, an offender is found to be insane or mentally defective, treatment will, of course, follow the usual lines. If there is no mental disorder, but there are repeated offences by the same person, the Committee recommends a policy of long periods of detention in special institutions. The problem of the elderly offender, whose acts are due to special physiological or psychological cause, is recognised. The Committee suggests that if the offence is an isolated one he can be placed on probation under supervision; if there are repeated offences, he should be confined in some non-penal institution.

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[1] See THE LANCET, 1925, ii., 1395.

[2] Report of the Departmental Committee on Sexual Offences against Young Persons. [Cmd. 2561.] London: H.M. Stationery Office. 2s.

[3] THE LANCET, 1925, i., 498.

Other points of professional interest in the report deserve mention. It is suggested that the services of women doctors be freely employed in the medical examination of young girls who are alleged to have been the victims of an offence. It is said that experience shows that where a girl has to be examined after complaint to the police there is less likelihood of causing her further mental disturbance if the examination is made by a woman doctor. As to the medical examination of an accused man the Committee moves cautiously. If the charge suggests the communication of venereal disease to the child, medical examination might enable an innocent man to clear himself; on the other hand, the medical examination may disclose evidence of disease which would corroborate the charge. The Committee rightly gives considerable attention to provisions for child welfare and to possible preventive measures, such as better housing, less overcrowding, more supervision in parks, cinemas, and school precincts, and the training of student teachers with a view to their giving sex instruction to the older children. Perhaps the most important, as well as the most controversial, recommendation is the proposal to raise the age of consent to 17, though on this point there is weightily reasoned dissent on the part of the legal members of the Committee—Mr. J. C. Priestley, K.C. (who replaced the late Sir Ryland Adkins as chairman); Mr. T. W. Fry, the metropolitan police-court magistrate, and Sir Guy Stephenson, Assistant Director of Public Prosecutions. On the whole the unanimity of the report is striking. It is not easy to reconcile conflicting opinions on vexed topics like these On the one side are the reformers, supported by a large and sympathetic body of voters throughout the country, and keenly sensible of the harm which sexual offences inflict upon the child victim. The reformers complain that there are too few prosecutions and too many acquittals; they want to give more jurisdiction to petty sessions, because juries at quarter sessions and assizes bring in so many verdicts of "Not Guilty"; they press for heavier punishments, a less rigid insistence on corroboration and strict legal proof, the abolition of all technical defences (such as that of "reasonable belief" that the girl was over the prohibited age), and a considerable raising of the age of consent. On the other side are the lawyers, and the judges recruited from the ranks of the lawyers, who insist that nothing must impair the traditions of law and procedure which are properly framed to ensure a fair and impartial trial. There is also what might be described as the Home Office view, sensible of the stronger arguments of both these parties and withal aware that it is undesirable to create innumerable fresh crimes, idle to enact severe punishments which courts will flinch from inflicting, and unsatisfactory to move too far in advance of a slowly instructed public opinion.

## THE HUMAN CONSTITUTION.

There has been for some years past an increasing tendency to direct attention towards what, for want of a more fitting term, is referred to as the human "constitution." The word has a familiar sound for the elders amongst us, and no doubt brings back to their minds memories of the great clinical physicians and surgeons whom they followed years ago. The acumen of these men, the way in which they would put an unerring finger on a patient's weak spots, seemed at times uncanny. Perhaps they would have found it hard sometimes to explain their grounds for an opinion, right though it proved to be, very much as we might find it almost impossible to say why we recognise with certainty someone whose face we cannot see, and whose garments are not those he wore when we last met him. Clinical instinct and insight retired modestly into the background when the laboratories and the researcher claimed the whole of medicine as their sole province; but it is again becoming evident that the human body cannot be explained in the laboratory or the dead-house. The subtle differences that make or mar an individual are none the less real because they are intangible, and herein lies the necessity for recognising the "constitution" of the individual. But this term has not quite the same meaning as it used to have; the modern conception is synthetic, it builds itself on measured data, and it cannot yet afford to stand away from a man and take a wide view of him. The fourth Henderson Trust Lecture,[1] delivered by Prof. W. W. Graves at the University of Edinburgh last October, is an admirable example of the material on which this new study of the individual man can be based. Prof Graves introduces us here to points about the scapula which will be new to many, if not to most, of us; he shows the hereditary nature of types, their persistence, and their indicatory significance with regard to morbidity and adaptability in general. As he has dealt with some 30,000 subjects, living and dead, his results may be considered fairly definite. Perusal of this interesting and important lecture makes one hope that in the not far distant future some use may be found for those portentous indices which sadden the reader of so many works on physical anthropology, and, if these can be made to show a value like that given to scapular types here, their accumulation, from the point of view of medicine, would be justifiable. The lecture should be read by clinicians; it cannot be much more than a rapid survey, within the limits of time of a lecture, but a full bibliographical index gives the reader the means to extend his acquaintance with the subject.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLIV.—THE TREATMENT OF CHRONIC MASTITIS.

The treatment of "chronic mastitis" has in the past been somewhat obscured by misunderstanding of its ætiology. It cannot be claimed that this is even now fully understood, but it is at any rate clear that the ætiology implied by the name which has so long been given to the condition is not the true one; consequently treatment aiming at allaying chronic mastitis on the supposition that it is an ordinary inflammation of the breast, due to a subacute infection with a pyogenic organism, such as a staphylococcus, is doomed to failure.

Sir Lenthal Cheatle has on many occasions stressed the necessity for a reform in the terminology of the chronic lesions to which the breast is subject, and has suggested the term "mazoplasia" instead of "chronic mastitis," on the ground that the epithelial changes so constantly found are the essential feature of the condition Epithelial changes are, however, only one incident in a pathological complex which it is almost impossible to summarise in a single word, and it may be wiser to postpone for the present any attempt to oust a term the use of which has become ingrained by the custom of so many years.

Chronic mastitis is not a disease of one age or sex, but is found in both sexes and, in its different forms, at all times of life. Its incidence is dependent, not on a bacterial infection, but rather on a disorderly process of secretion and absorption which are going on at all times in varying degree in a gland unprovided with an outlet except during lactation. The pathological and statistical evidence for these statements has been elaborated by me elsewhere.[1] In the present article no more reference will be made to ætiology than is necessary in order to indicate a rational basis for the treatment recommended.

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[1] The Relation of Shoulder Blade Types to Problems of Mental and Physical Adaptability. By Prof. William Washington Graves, St Louis, Mo, U.S.A London and Edinburgh Oliver and Boyd 1925 Pp. 35 6d.

The mammary gland is provided with epithelium which is possessed of some secretory activity at all times of life. Its physiology is therefore intimately bound up with its pathology, and for present purposes its physiological history will provide some sort of arbitrary basis for indicating the lines upon which the pathological manifestations may be treated. The names used must be regarded as a matter of convenience rather than as representing the whole truth.

### *Infantile Mastitis.*

It may often be noticed that the breasts in a newborn child are enlarged and tender. It may even be possible to express from them a certain amount of secretion, and midwives have advised a systematic removal of this fluid. The activity of the breasts is probably due to the exposure of the infant before birth to the same hormonic stimulus which, in the maternal circulation, is tending to produce normal lactation. Interference with the breasts of the infant in this state results sometimes in infection, followed by an acute suppurative mastitis. If the breasts are left undisturbed, the congestion and enlargement will soon subside of its own accord. No treatment, therefore, is called for except, perhaps, the application of a sedative lotion, such as lotio plumbi cum opio, to allay any pain which the infant may be suffering.

### *Puberal Mastitis.*

Between the ages of infancy and the onset of sexual maturity the breasts are very unlikely to show any signs of activity, and attention will not be directed to them. It is common, however, for girls of about 12 years and for boys a year or two later to complain of a painful enlargement of the breasts for which their parents seek medical advice. Histological examination of breasts in this condition shows that the large collecting ducts are filled with a clear fluid secretion, but that there are no truly pathological changes in the epithelium or elsewhere. The pain is not severe, and can be endured. The patient and the parent can be reassured as to the harmlessness of the condition. In girls it will merge with the normal hypertrophy of sexual maturity; in boys it will persist for two or three years or even longer, and will eventually disappear. Seldom is any active treatment called for. Surgical treatment of the mammary gland in boys or young men will only be necessary in the rare cases in which the congestion of puberty has passed into the true hypertrophy called gynæcomastia. The gland can then be dissected out from beneath the nipple and areola, so that there need be no visible mutilation.

### *Menstrual Mastitis.*

From the onset of puberty in girls the activity of the mammary glands is closely associated with that of the ovaries, as indicated by the menstrual periods. In this connexion it is not uncommon to meet with women in the third decade of life in whom the usual clinical signs are absent or only slightly marked, but who complain notwithstanding of discomfort or pain in the breasts, this being greatly accentuated during, or just before, the menstrual periods. The treatment of such cases is usually difficult and unsatisfactory. Palliative treatment may be given, such as an application of glycerine and belladonna and the administration of potassium iodide. The breasts, if large, may be supported in the way recommended by Mr. Duncan Fitzwilliams, that is by the application of two vertical strips of adhesive strapping which start below the breast, pass over it on either side of the areola, and extend over the top of the shoulder. These measures may give some relief of pain, but usually it subsides only with the decline of the menstrual period. Sometimes the psychological condition of the patient is abnormal and the breasts receive a disproportionate amount of her attention, so that the treatment should be subjective rather than objective. If circumstances allow, marriage followed by pregnancy and lactation will prove to be the best solution of the difficulty. Operation should be avoided.

### *Chronic Mastitis.*

After the age of 30 the incidence of true "chronic mastitis" rises rapidly, and with it the proportion of cases in which the usual local signs of the disease become more obvious. At the same time the association with menstruation becomes less marked. At this stage the palpably dilated ducts and acini contain increased secretion, and an attempt should be made to remove it. Sometimes this may be effected by opening up the mouths of the ducts in the nipple by bathing with warm water and then applying a suction bell. This should be done systematically once a day, and a considerable quantity of turbid or greenish fluid may be removed in this way, and relief obtained. But, owing to occlusion of the ducts by fibrosis, the process may not be successful, so that the parts of the breast most affected may not be effectively drained, and the treatment should then not be persisted in for long. At the same time careful attention should be given to proper regulation of the bowels, and other possible sources of chronic intoxication, such as infected nasal sinuses, infected teeth, or cervicitis, must be sought for and treated. Any of these may interfere with the normal reabsorption of the secretion in a non-lactating breast, with consequent initiation or accentuation of pathological changes therein.

If none of these methods of treatment are effective, the use of X rays must be considered. The object of X ray treatment is the production of an artificial atrophy of the glandular epithelium with consequent inhibition of all secretory activity. The dosage required must be accurately gauged; usually one application by an expert radiologist results, after a temporary increase of pain, in considerable relief of symptoms. Sometimes a second application may be needed after an interval. This treatment must not be given if the patient is likely to become pregnant at a later date.

Chronic mastitis in its later stages is very often associated with the presence of cysts and with more than one form of epithelial overgrowth. A single small cyst may occasionally be satisfactorily treated by aspiration of its contents, but this is purely palliative. The cyst will probably recur, and it is nearly always the sign of diffuse, but less obvious, changes in the rest of the breast. If the cyst is large, or if several are present, operative treatment will have to be considered, since the application of X rays is not to be advised. It is a matter of experience that chronic cystic mastitis is less often associated with the presence of carcinoma than chronic mastitis without cysts, so that operation need not necessarily be regarded as imperative. Removal of one segment of a breast, or even local excision of a cyst, may occasionally be justified, but complete local amputation of the breast is usually to be preferred. The differential diagnosis between a localised chronic mastitis and an early carcinoma may be extremely difficult to make on clinical evidence alone, and if the slightest suspicion of the presence of a carcinoma has arisen, then an operation must be performed without delay. At the same time it may be remembered that chronic mastitis is not a "precancerous" condition in the great majority of patients in whom it occurs, so that the importance of operation on this theoretical ground need not loom too largely in the mind of the practitioner. No rules, however, can be laid down for guidance, for every case must be carefully considered on its merits.

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[1] Brit. Jour. Surg., 1923, xi., 89.

# Special Articles.

## INTRODUCTION TO A DISCUSSION ON FRACTURES IN THE NEIGHBOURHOOD OF THE ANKLE-JOINT.*

BY HARRY PLATT, M.D. MANCH., M.S. LOND., F.R.C.S. ENG.,

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A LITTLE more than 100 years ago Guillaume Dupuytren (1777–1835), then the foremost surgeon in France, writing on fractures of the lower end of the fibula, made one of his most illuminating contributions to the literature of our art.[1] From this essay, which represented the experience of a 15-year period as surgeon-in-chief to the Hôtel-Dieu in Paris, dates the real foundation of our present knowledge of the anatomy and the mechanism of production of ankle-joint fractures. Although injuries of this type must have been familiar problems in the practice of both of the ancients and of the surgeons of the Middle Ages, as Dupuytren himself pointed out, from the writings of Hippocrates, Ambroise Paré, and other great masters, scanty information is to be gleaned. But in the eighteenth century J. L. Petit (1674–1750), our own Percival Pott (1713–1788), and Cl. Pouteau (1725–1775)—all names to conjure with in the evolution of the surgery of fractures—began to teach that injuries which had long been classed as *dislocations* of the ankle-joint were always accompanied by *fractures* of one or both bones of the leg. This conception was adopted wholeheartedly by Dupuytren, and is emphasised in his *recognition of the fibular fracture as the pivotal* injury, with the dislocation as a consecutive phenomenon. It is interesting to compare his writings with those of another great surgeon of that generation—Astley Cooper—who has also left behind a masterly exposition of this subject, with the injuries described as primary dislocations, but from which the student of to-day can reconstruct every known variety of ankle-joint fracture.[2] In the introductory part of Dupuytren's *memoir* the serious disabling consequences of ankle-joint fractures are stressed in phraseology which leaves us in no doubt as to the type of functional result regarded as inevitable at that date. He writes as follows: "Under the most favourable circumstances they (i.e., fractures of the lower end of the fibula) almost always leave deformity and lameness, which renders progression more or less difficult or painful." (I quote from the admirable translation of Dupuytren's clinical lectures made for the Sydenham Society in 1846 by a bygone surgeon of St. Thomas's Hospital—Le Gros Clark.[3]) But Dupuytren saw no reason to rest content with contemporary standards of fracture treatment, and some idea may be gained of the therapeutic triumphs he achieved when we learn that in a personal series of 207 ankle-joint fractures 202 were "cured," and of these in *two* only was there deformity, and in *one* only loss of mobility! For an explanation of the five deaths in this series we must visualise the terrors of the compound fracture before the advent of the Listerian revolution.

Such quotations hold more than a purely historical interest for us. *Is Dupuytren's graphic description* of the sequelæ of ankle-joint fractures a mere echo from the past, or does it recall a type of disability with which we are still familiar? And to-day a full century since Dupuytren taught and perfected efficient methods of treatment, do his standards still prevail in the general handling of ankle-joint fractures? I think the answer is contained in the *deliberate choice of the subject for discussion at this* meeting. It is thus an old chapter in the history of surgery which we are about to reopen, and though our subject is a commonplace problem in surgical handicraft, classical in its antiquity, it appears strangely new as each succeeding generation comes fresh to its difficulties, often oblivious of the wealth of knowledge already bequeathed by the older masters.

### *Classification of Ankle Fractures.*

Ankle-joint fractures fall naturally into two distinct groups which have really little in common. In the *first* and more important group are the *fractures of the leg bones*—lower end of the tibia and fibula; the *second* comprise fractures of the *astragalus*. As *a rough indication of the relative incidence of the* two groups of lesions, I might quote some personal statistics. In the four-year period, 1921–24, in which I have reviewed for the purpose of this paper the *recent* ankle-joint fractures treated in my own clinic, there have been 116 fractures of the leg bones and four fractures only of the astragalus. In the first nine months of this year (1925—January to September), 29 recent ankle-joint fractures have passed through my unit at the Ancoats Hospital, but all belong exclusively to the first group. Fractures of the astragalus are thus comparatively rare injuries. They have a certain intrinsic interest, but from an ætiological and mechanical point of view would be more appropriately studied with fractures of the os calcis. We shall now consider the two groups separately, devoting the greater part of our attention to the fractures of the leg bones.

### *Fractures of the Leg Bones (Tibia and Fibula).*

*Nomenclature and Classification.*—Much confusion surrounds the current nomenclature of ankle fractures, for at least three different types of terminology are commonly employed. In the first place, there is the *historical* classification, in which the name of some great surgeon of the past has become attached to a particular type, or group, of fractures—e.g., Pott's fracture, Dupuytren's fracture. Then there is the classification based on the *mechanism of production*, as illustrated in the use of such terms as abduction fracture, adduction fracture; and, lastly, many attempts have been made to evolve a grouping with a strictly *anatomical* or *physiological* foundation—e.g., bi-malleolar fractures, isolated fractures of the fibula, and so on. It is desirable in the interests of surgical teaching that the scope of such varied terminology should be defined and, if possible, some simple standardised classification adopted for general use.

1. *Historical Nomenclature.*—It is often stated that Pott obtained first-hand knowledge of the fracture with which his name has become inseparably associated as a result of a personal accident. But this is untrue, for the injury sustained by Pott was a fracture of the shaft of the tibia—probably with little or no displacement, and from which he made an excellent recovery.

In the course of a general essay on fractures of the leg bones and their treatment, a description of what Pott believed to be the common ankle-joint fracture was given, accompanied by an illustration which is now classical[4] (Fig. 1). It will be seen that this injury consisted in a *transverse* fracture of the fibula about 2½ inches above the malleolar tip, combined with a rupture of the internal lateral ligament and a conspicuous outward displacement of the foot. Pott gave a logical account of the mechanism of the eversion deformity, which in his view was due to the mechanical advantage obtained by the peronei muscles as soon as the support of the fibular strut was lost. It is also clear from his writings that he had treated such injuries with success, reducing the deformity after flexing the knee and placing the limb on its outer side. Dupuytren (loc. cit.), writing 50 years later, whilst applauding Pott's description, expressed the opinion that the English surgeon did not employ appropriate retentive treatment.

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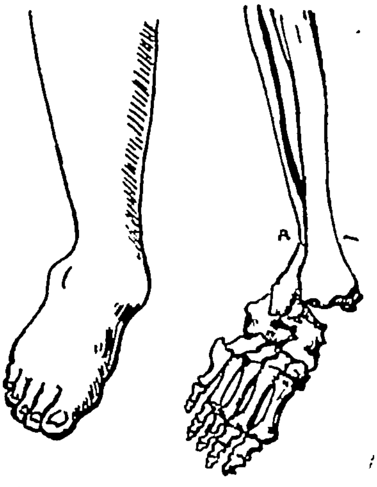
* The discussion took place at the annual meeting of the British Orthopædic Association, Manchester, on Oct. 23rd, 1925. In a forthcoming issue of THE LANCET will be given further contributions to the discussion. The illustrations to Mr. Platt's paper, with one exception, are the work of Dr. Margaret Greg, of Manchester, and for the most part are accurate line drawings of radiograms.

It is now evident that as a description of the common ankle-joint fracture Pott's account and illustration contain several anatomical inaccuracies. Indeed Ashhurst, of Philadelphia,[5] who has given us the most authoritative essay on ankle-joint fractures of modern times (1922), declares that Pott depicted a type of fracture which does not exist! Dupuytren appeared, however, to accept Pott's description as a sufficiently faithful picture of the common fracture of the lower end of the fibula accompanied by displacement of the foot, an injury which dominated his own series of 207 ankle fractures. To this familiar lesion the French have given the name Dupuytren's fracture. Unfortunately in English surgical literature the term Dupuytren's fracture is applied to a fracture of the fibula with complete diastasis at the inferior tibio-fibular junction, and gross displacement of the astragalus which follows the distal fibular fragment and comes to lie in contact with the lateral aspect of the tibia. This is an exceedingly rare lesion, which Dupuytren himself saw *once* only in a series spread over a period of 15 years. We should therefore agree to eliminate the Dupuytren fracture of the English text-books as a term denoting a definite *group* of lesions (see Fig. 8). According to Ashhurst, the first accurate description of the typical ankle fracture recognised clinically both by Pott and Dupuytren is to be attributed to Maisonneuve[6] (1840), who established the great frequency of the *oblique* fracture of the lower end of the fibula and its production by pure *external rotation* of the foot on the leg.

It is obvious that it will be difficult, if not impossible, to abolish the term "Pott's" fracture, in this country at least. It would therefore seem best to adopt some broad definition of its scope. There is little objection to its employment as a generic title, to include those fractures of the lower 3 inches of the fibula, which are accompanied by rupture of the internal lateral ligament or fracture of the internal malleolus, and in which there is the slightest degree of deformity at the ankle-joint—either eversion alone or eversion combined with posterior displacement of the foot. But at the same time it would be more generous, and historically more accurate, to speak of fractures of the *Pott-Dupuytren* type. This is the terminology which will be adopted in this paper.

FIG. 1.

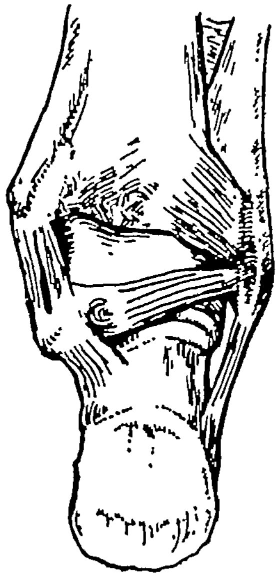


Copy of Pott's original illustration.

2. *Mechanism of Production.*—The mechanism of the production of ankle fractures must receive our close attention quite irrespective of any attempt to establish a working classification. The older surgeons first approached this problem from the experimental standpoint in the production of ankle fractures on the cadaver, notable contributions being made by Maisonneuve (1840), and, later, Tillaux[7] (1872), and Honigschmied[8] (1877).

*Ankle-joint Mortise.*—The physiological mechanics of the mortise formed by the lower ends of the tibia and fibula should need little elaboration. Certain points, however, may be emphasised. (1) Although the two bones are bound together by the strong ligaments of the inferior tibio-fibular junction, the mortise exhibits an appreciable degree of elasticity which is called into play as the astragalus is thrust back during dorsiflexion of the foot. (2) The stout connexion maintained between the fibula and the astragalus by the posterior fibres of the external lateral ligament of the ankle has no counterpart on the mesial aspect of the joint. In consequence, in all injuries in which the tibio-fibular continuity is lost, the astragalus remains attached to the fibula and is displaced with it (Fig. 2). (3) Backward displacement of the foot cannot occur until the fibula is freed entirely from the tibia, or alternatively the astragalus is freed from the external malleolus. The latter contingency does not arise in ankle-joint fractures.

FIG. 2.



Right ankle-joint (posterior view). Shows the strong fasciculus of the external lateral ligament which binds the external malleolus and astragalus together.

*Types of Violence.*—A study of the mechanism of production of ankle fractures resolves itself mainly into a consideration of the effects of the different types of *indirect violence*, for fractures in this region due to direct violence are extremely rare and possess little special interest (1 per cent., Ashhurst). There are three types of forced movement of the foot in which a breaking strain may be transmitted via the astragalus to the lower ends of the tibia and fibula. These are; (1) external rotation; (2) abduction (eversion); (3) adduction (inversion). To these may be added a fourth type of violence which often acts as a contributory factor—viz., an upward compression thrust on the ankle mortise.

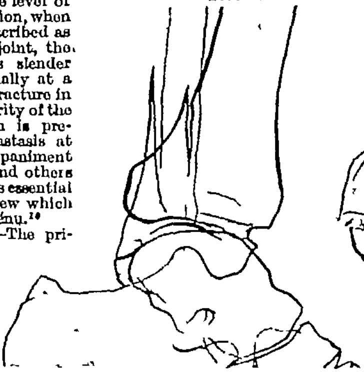
1. *External rotation* as a form of indirect violence, in contradistinction to abduction, was first investigated by Maisonneuve, who from his experiments on the cadaver believed it to be the means whereby the common type of ankle-joint fracture was produced. In this movement the foot is rotated out in the ankle mortise around the vertical axis of the leg, and the force transmitted to the fibula is a *torsion* strain which breaks this bone in an *oblique or spiral fashion*, the line of fracture running downwards and forwards through the inferior tibio-fibular joint (Fig. 3). The ligamentous bond between the tibia and fibula for the greater part remains intact, so that in this fracture *diastasis* is rare. The fibular fracture is the pivotal injury and at this stage the violence may be completely expended. (The so-called fracture of the first degree.) But when the external rotation force continues to act certain consecutive lesions are induced—either a fracture of the internal malleolus, or its equivalent, rupture of the internal lateral ligament. (Fracture of the second degree (Fig. 4).) In a few extreme cases the tibial lesion is represented by a fracture which involves the whole width of its lower end. (The third degree fracture (Fig. 5).)

2. *Abduction* (eversion).—Force abduction of the foot tends to evert the astragalus in the ankle mortise, and so exercises a *bending* force on the lower end of the fibula. If the fibula breaks, the lesion shows all the characteristics of a bending or flexion fracture—i.e., the line is roughly transverse, and on the concave aspect there may be a localised comminution with partial detachment of a small wedge. Here, again, the

same forced movement tears off the inner malleolus. I have put the fibular fracture first, but chronologically the *internal malleolus* gives way before the fibula breaks. Three degrees of fracture again may be distinguished as in the external rotation fractures. In the torsion fracture produced by external rotation the site of the lesion is remarkably constant. But the abduction fracture may occur either (*a*) below the level of the inferior tibio fibular junction, when the fracture is accurately described as *malleolar*, or (*b*) above this joint, the fibula breaking through its slender "surgical" neck, or occasionally at a still higher level. With a fracture in the former situation the integrity of the inferior tibio fibular junction is preserved, but in the latter diastasis at this joint is the usual accompaniment (Fig 6) Destot,[9] Ashhurst and others regard preliminary diastasis as essential in this type of fracture, a view which has been controverted by Quénu.[10]

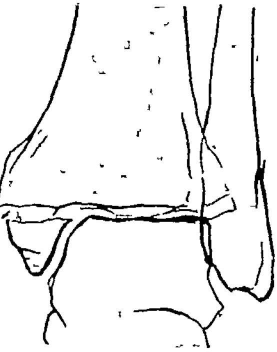
3 *Adduction* (inversion)—The primary lesion induced by a forced adduction (tibial flexion) is the tearing off of the *external* malleolus The continued compression thrust of the astragalus against the internal malleolus adds on a secondary fracture But as Dupuytren showed, the associated *tibial* injury may be produced in a different way—viz., by weight-bearing immediately following the occurrence of the fibular fracture. In such cases the line of split may begin well within the mortise and emerge on the mesial aspect of the tibial shaft just above the ankle.

FIG. 3.



External rotation fracture Lateral radiogram. Shows the oblique fracture of the fibula and a *posterior marginal fracture* of the *tibia*.

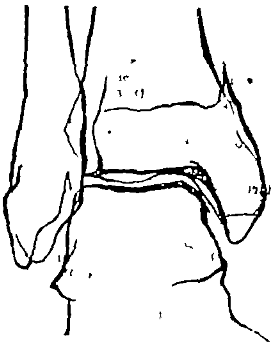
FIG. 4.



External rotation fracture Antero-posterior view. Note the separation of the internal malleolus The fibular fracture is scarcely visible.

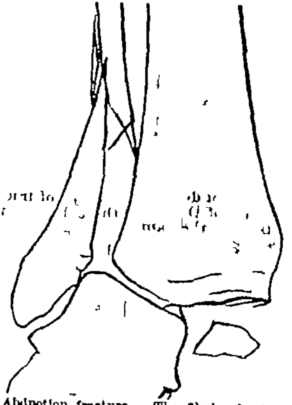
The relative incidence of the three forms of indirect violence has long been a matter for investigation and conjecture. Dupuytren surmised that 60 per cent. of his ankle fractures were produced by an *adduction* force, but he commented on the difficulties of obtaining accurate information from patients. This question has received greater elucidation since the introduction of radiography. Ashhurst, in an analysis of 300 cases, found *external rotation* fractures in 61 per cent., *abduction* fractures in 21 per cent., and *adduction* fractures in 13 per cent. His conclusions have been deduced from a careful scrutiny of the radiograms of his series which showed a preponderance of the oblique or spiral fracture of the fibula. In my own smaller series of recent ankle-joint fractures (110 cases) much the same relative incidence is seen. One finds, however, with Ashhurst, that the radiographic interpretation of a certain proportion of fibular fractures is difficult; and it is a matter of personal opinion whether these should be assigned to the external rotation or abduction class

FIG 5.



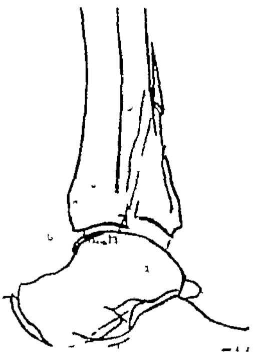
External rotation fracture (third degree) (after reduction). The tibial fracture includes *the whole* width of the lower end.

FIG 6.



Abduction fracture The fibular fracture of the "bending" type is unusually high. There is an *accompanying* diastasis.

FIG 7.

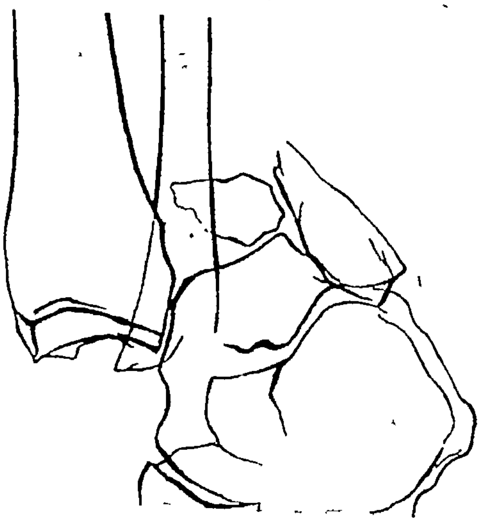


External rotation fracture Shows accompanying posterior marginal fracture of the *tibia*.

4. *Compression Violence.*—In the mechanism of ankle fractures the rôle of another important factor remains to be considered—i.e., the effect of weight borne on the injured limb immediately following the solution of continuity of the fibula. An illustration of the intervention of this factor has already been quoted in connexion with the adduction The effect of body-weight is first of all to

the fibular fracture more completely, and so produce or enhance the eversion displacement of the foot. But in a certain proportion of ankle fractures this upward compression force is responsible for the production of a third fracture known both to Dupuytren and Astley Cooper, later forgotten, and rediscovered by many subsequent observers. This is now often called the *posterior marginal fracture* of the tibia. This fracture involves the separation of a triangular fragment from the posterior aspect of the tibia in the neighbourhood of the inferior tibio-fibular junction, the line of fracture running down into the roof of the mortise. The fragment remains indissolubly attached to the external malleolus, and is displaced with it in company with the astragalus (Figs. 7 and 8, A). Much attention has been paid to the incidence and the mechanical significance of the posterior marginal fracture, particularly by modern French writers—e.g., Chaput,[11] Destot (loc. cit.), Quénu (loc. cit.). Lucas-Championnière [12] was first responsible for the suggestion that it is produced by a crushing force acting upwards. This important consecutive injury is by no means a rare complication of ankle fractures. Ashhurst discovered 58 examples in his series of 300 (19 per cent.), and other writers—e.g., Destot, Quénu, and Speed [13]—have found it in roughly 10 per cent. of their cases.

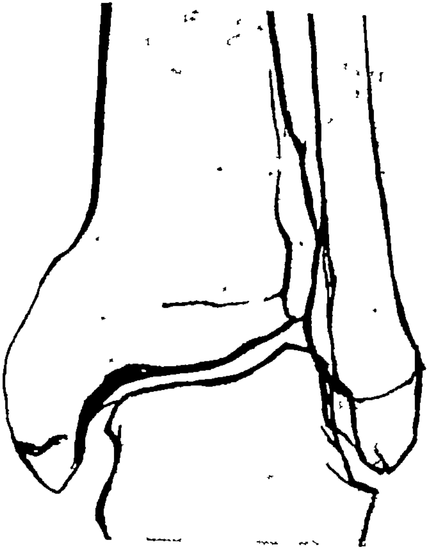
FIG. 8, A.



Combined fracture of both bones with extreme backward and outward dislocation. Note that the fibula remains attached to the astragalus, and the presence of a posterior marginal fracture of the tibia.

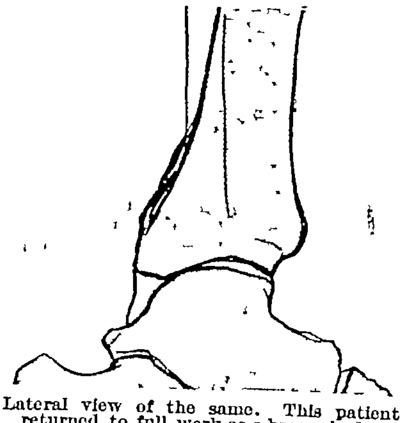
It is interesting to note that this fracture may occasionally be present as an isolated lesion unassociated with the classical fibular injury (Meissner,[14] Ashhurst). Ordinarily it is to be discovered in a high proportion of external rotation or abduction fractures of the fibula in which there is gross displacement of the astragalus (Potts-Dupuytren type). It is to be remembered, however, that this fracture is often visible in radiograms where displacement is practically non-existent (see Fig. 3). Although posterior dislocation of the foot may occur in the absence of a posterior marginal fracture—i.e., where tibio-fibular diastasis has occurred (see Figs. 10, A, 10, B)—for practical purposes the deformity and the lesion are interdependent. This is well illustrated in skiagrams of many mal-united ankle-joint fractures (Fig. 9). An interesting example of backward displacement of the foot in an isolated fibular fracture, uncombined with a posterior marginal fracture or diastasis, has been recorded recently by Clavelin,[15] but in this case the fracture was produced by direct violence. There remains yet another consecutive fracture which on rare occasions may contribute to the anatomical picture of the typical ankle fracture. We have already referred to the occurrence of diastasis between the tibia and fibula in a certain proportion of abduction fractures. Usually this separation between the bones implies a pure rupture of the interosseous ligaments, but more rarely an *anterior marginal fragment* is detached from the tibia including what is known as the anterior tubercle. Diastasis by fracture may in exceptional circumstances be associated with external rotation fractures, where chronologically it is believed to precede the fibular break (Ashhurst). The anterior marginal fracture also may be represented by a mere crack with no actual displacement.

FIG. 8, B.



The same ankle six months after manipulative reduction, 1921. Antero-posterior view.

FIG. 8, C.



Lateral view of the same. This patient returned to full work as a brewer's drayman eight months from the time of the fracture, and has worked continuously without symptoms of discomfort for the past three years.

3. *Anatomical and Physiological Classifications.*—Elaborate classifications of ankle-joint fractures have been evolved by Destot (1911) on a physiological basis, by Quénu on an anatomical basis (1912), and a simpler combined scheme suggested by Tanton in 1916.[16] Ashhurst (loc. cit.), whilst advocating a classification founded on mechanism, also presents an anatomical grouping as illustrated by his own material. For practical purposes a very simple classification is desirable, such as the following which is based on Tanton's more elaborate scheme.

*Fractures of the Malleoli.*—(1) Isolated. (*a*) Fibula, (*b*) internal malleolus. (2) Combined. (*a*) Low bi-malleolar, (*b*) Pott-Dupuytren type.

*Fractures of the Tibial "Pilon"* † (i.e., weight-bearing articular portion). (1) Isolated. (*a*) Anterior marginal, (*b*) posterior marginal, (*c*) "T"- or "Y"-shaped, (*d*) atypical fractures, (2) Associated (with malleolar fractures).

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† This is a term suggested by Destot.

This classification is capable of expansion for statistical purposes, and at the same time is simple enough for the maintenance of routine records in the work of a fracture clinic. Some such broad grouping is also necessary for use in undergraduate or post-graduate teaching, which in my judgment should be founded on an exposition of the mechanism of production as a natural approach to the study of the principles which govern efficient treatment. For this purpose the classification of Ashhurst is invaluable.

*Incidence of the Various Anatomical Types.*—Now that we have chosen from the available terminology some sort of practical grouping for ankle-joint fractures, it is instructive to inquire into the relative incidence of the various anatomical types. Ashhurst's series and my own lend themselves readily to such a survey.

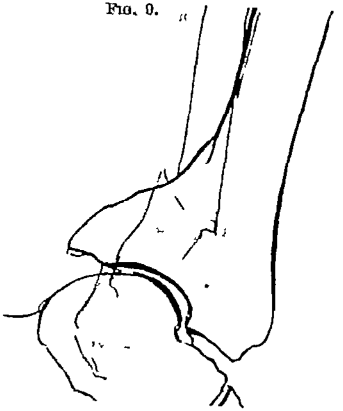
| | Ashhurst | | Platt.* | |
|---|---|---|---|---|
| Fractures of malleoli . | 300 cases. | | 116 cases. | |
| | Per cent. | | Per cent. | |
| Isolated—Fibula . | 35 | | 28 | |
| Int. malleolus | 6 | | 12 | |
| Combined—Low bi malleolar | 8 | 53 | 8 | 55 |
| Pott-Dupuytren | 45 | | 47 | |
| Fracture of the tibial "pilon"—Isolated . | 2 | | 3 | |

* In this series the tibial fracture was represented by a so-called epiphyseal displacement in *three* cases.

Kellog Speed's (loc cit.) series of ankle fractures reviewed in 1914 is more difficult to analyse on the above basis, as under the heading bi malleolar he includes many lesions which we should assign to the Pott-Dupuytren class His figures for the combined group of malleolar fractures, however, give a percentage which roughly corresponds to the incidence shown in the above table

It is evident that in any consecutive series of ankle-joint fractures approximately 50 per cent. of the cases will be combined lesions of both bones.

FIG. 9.

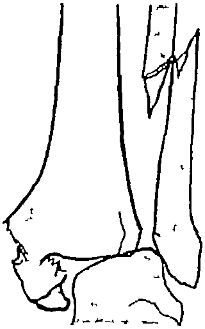


Malunited ankle fracture of six years' standing The demarcation between the posterior marginal fracture and the remainder of the lower end of the tibia is still visible

Moreover, it will be found that the predominating fracture of the fibula is the oblique or spiral type induced by external rotation.

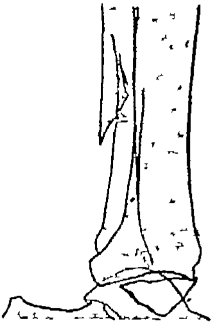
*Incidence of Primary Deformity.*—We must also realise that in the majority of ankle fractures there is no appreciable displacement of the astragalus. I make this statement with extreme diffidence, not unmindful of the finer degrees of mal-alignment of the fibula, internal malleolus, or astragalus, which radiograms often display (see Figs. 4, 7). In both Ashhurst's and my own series fractures with definite and unmistakable clinical displacement constitute at least *25 per cent of the whole*, and the same conclusions may be derived from the figures of Speed and other writers. But I am convinced that a more careful scrutiny of the combined fractures of the tibia and fibula in the future will reveal a higher incidence of primary deformity.

FIG. 10, A.



Abduction fracture Antero-posterior view The fibular fracture is unusually high. Diastasis is present.

FIG. 10, B.



Lateral view of the same fracture. Note the backward displacement of the astragalus.

## *Clinical Considerations.*

The conditions under which ankle fractures are produced, and the resulting clinical picture, are sufficiently familiar to render a detailed consideration unnecessary Bearing in mind the high proportion of fractures in which obvious primary *deformation* is non-existent and crepitus not readily obtainable, we cannot insist too often on the necessity of a full radiographic examination of all ankle injuries in which the type of violence is a forced movement of the foot. Skiagrams in two planes are, of course, a sine qua non. The typical external rotation fracture of the fibula may be barely discernible in an antero-posterior view, but is always well shown in a lateral view (see Figs. 3 and 4)

In a *patient seen* for the first time a few hours after the accident, minor degrees of displacement may be masked to some extent by the effusion in or around the ankle-joint. *In my opinion* the vital importance of the early recognition of the lesser degrees of displacement is not widely appreciated. Such cases tend to become the *victims of a laissez-faire* attitude on the part of the medical attendant, be he junior hospital officer or general practitioner. A radiographic examination is often postponed *for* a few days, and the skiagrams when obtained are interpreted hastily as showing no gross displacement, so that there appears to be no indication for *manipulative* reduction under anæsthesia. Such limbs are occasionally laid on a pillow and early *passive* movements instituted—an example of the common modern abuse of the teachings of Lucas-Championnière.

The ankle fracture with gross eversion and backward dislocation of the foot, with the skin tightly stretched over the internal malleolus, offers little or no difficulty in diagnosis even to the uninitiated. Paradoxically enough such cases are *often handled* more effectively than those in which a minor displacement is present.

### *Treatment.*

In the treatment of ankle fractures two distinct problems must be envisaged: (1) the treatment of recent fractures; (2) the treatment of old fractures giving rise to deformity and disability.

*Recent Fractures.*—At this stage in the introduction to our discussion the first great point for debate emerges. This is concerned with the relative merits of *conservative* and *operative* methods of treatment. It will be generally agreed that in the large group of fractures unaccompanied by appreciable displacement the employment of conservative measures as a routine is beyond criticism. Our attention must therefore be focused on the smaller group which shows the typical primary displacement. The economic importance of such injuries when occurring in adults who are in the prime of life is sufficiently obvious.

It is probably true to say—as I have already hinted—that the disabling sequelæ of ankle fractures are as familiar to-day as in the time of Dupuytren. Such results do not warrant a general indictment of conservative treatment. They are simply evidence either of gross neglect, which usually implies a missed diagnosis, or the imperfect application of methods of reduction and retention which may be inherently sound. The questions to be answered are: (1) Is it possible by manipulative measures alone to obtain accurate reduction of the displacement and to control the limb effectively by external fixation for the necessary period of healing of the fracture? And (2) in actual practice do such methods give the highest standard of functional results? If conservative measures are found wanting in any single particular, the arguments in favour of primary operative interference are likely to be overwhelming. It may be remarked here that the teaching of the Arbuthnot Lane school[17] has not met with ready acceptance, as far as ankle-joint fractures are concerned. I have made some attempt to answer these questions, and to define my own attitude in this discussion, chiefly as a result of a survey of the personal series of fractures already quoted, and also from the collateral experience over a longer period of a considerable number of similar fractures not systematically recorded.

When I began to take an intensive interest in this subject some three years ago, stimulated particularly by Ashhurst's unique paper, my general impression was that the routine use of non-operative methods was attended by far too many disappointments. At that time I felt tolerably certain that sooner or later I should be persuaded to give a systematic trial to reduction and fixation by open operation. This attitude was chiefly determined by the fact that the majority of the patients with recent ankle-joint fractures dealt with in my clinic were discharged from physiotherapeutic treatment somewhere between the eighth week and sixth month, according to the type of case.‡ At this stage most of them were considered fit to undertake light work. In many cases the records made at the time of discharge emphasised the existence of a slight limp, necessitating the use of a stick, and many ankle-joints which showed a satisfactory anatomical result were not entirely free from discomfort, and sometimes showed limitation of mobility. But my earlier impressions have been considerably modified by the information obtained from a survey of the late results, for it has been the rule to find that steady improvement has occurred from the sixth month onwards. I have been able to trace about 90 per cent. of the cases, and to estimate the type of functional result either from a personal examination or from the answers given in a questionnaire. The most striking results are seen in the patients reviewed after a period of two years or more has elapsed from the time of the injury, the great majority of whom have been able to return to pre-accident occupations involving laborious duties (see Fig. 8, A, B, C). No patient in this series is prevented from working as a result of his injury.

I am confident that in the greater proportion (if not all) of ankle-joint fractures accompanied by displacement even of the most extreme degree, it is possible by non-operative methods to achieve perfect anatomical reposition, and to ensure the highest standard of functional result. Similar views have been emphasised recently by Ferry of the Strasbourg University Surgical Clinic.[18]

Of the 116 cases reviewed in my series, conservative methods have been employed in all but four, which were treated by open reduction between the fourth and sixth week following the injury. In two of these no previous attempt had been made to correct the primary displacement; in the remaining two manipulative reduction carried out in my own clinic, and for which I accepted responsibility, failed to give perfect readjustment. These operations do not really belong to the category of deliberate primary operative reduction, but they illustrate in my judgment the true rôle of operative methods in the treatment of recent ankle-joint fractures—i.e., that one should be prepared to resort to operation only if manipulative reduction—repeated if necessary—has failed, or where displacement has been left uncorrected for some days.

### *The Technique of Manipulative Reduction.*

The method used in my own clinic has been correction of the displacement under full anæsthesia at the earliest possible moment, followed by the immediate application of a well-fitting plaster-of-Paris cast with the posterior part of the foot fully inverted. I believe that it is difficult to effect perfect readjustment in the majority of these fractures except under conditions of complete muscular relaxation; and further, in my experience, there is no form of retentive apparatus, other than plaster-of-Paris which gives adequate control of the heel once correction of the eversion and backward dislocation has been achieved. In hospital practice the primary reduction of a Pott-Dupuytren fracture must of necessity often fall to the lot of the surgical residents. It is only where there is a segregation of fractures that residents can hope to acquire dexterity and confidence in the handling of these injuries. In the fracture organisation of my own hospital, the resident surgical officer (a senior "long-stay" resident) and the house surgeon attached to my unit are conjointly responsible for the control of all fractures once they reach the casualty department. Many of the ankle fractures are reduced and are fixed in plaster before I see them. In such cases it is a strict rule that the radiograms taken after reduction must be submitted to me for approval. I find it necessary to emphasise unceasingly the importance of the minor degrees of displacement and the advantages of prompt reduction in all cases.

*After-treatment.*—It is unnecessary for me to enter into a detailed exposition of the technique of after-treatment. This aspect will probably be elaborated in the discussion which is to follow. It is my usual practice to bivalve the plaster cast at the end of three weeks, or even earlier in the slighter cases, but to retain the foot in the inverted position in the posterior half of the plaster two or three weeks longer. At this stage light massage, active movements of the toes, and, according to the surface area available, graduated faradic stimulation of the muscles of the anterior tibial group are carried out. The posterior half of the cast may with advantage be worn for some little time as a night splint. When the limb is left entirely free from restraint, more energetic physical methods are employed, but forced movements of the ankle-joint are, of course, prohibited. Where there is an unusual persistence of œdema or pain, radiant heat or diathermy are prescribed. Before weight-bearing is tried—from the tenth week onwards—the classical precautions to prevent secondary deformation are adopted—viz., the wedging up of the inner border of the shoe, and, in patients of heavy build, the application of a short outside steel and "T"-strap. This is worn for some six months. The final stage in the physiotherapeutic régime is gymnasium treatment given in the "ankle class."

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‡ The average period of full incapacity was 14 weeks.

*Old Fractures.*—During the four-year period chosen for a review of my recent ankle fractures, a series of 50 old ankle fractures treated elsewhere, and presenting some form of disability, have passed through my hands. It is interesting to find that the majority of these showed malunion with well-marked deformity, which points to the conclusion that given a good anatomical reduction the functional result is rarely unsatisfactory.[1] This series contained, however, a few patients with painful ankle-joints showing a certain degree of limitation of mobility, but with no trace of mal-alignment. In a considerable number of the cases of gross malunion, there was free mobility at the ankle. The deformity generally appeared to have been determined by imperfect reduction, rather than neglect in after-treatment, although no doubt the latter factor played a contributory rôle.

In the treatment of the disabilities which may follow ankle fractures we are called upon to choose between mere *palliation* and the use of *operative measures.*

(*a*) *Palliative treatment* is often the only method available, by reason of age, physique, or the economic situation of the patient. In cases with deformity much comfort is derived from the wearing of the usual outside steel and "T"-strap; but this appliance must be a permanency. For the painful ankle-joint, which is most probably the seat of an early osteo-arthritis, we are compelled to rely on the usual analgesic physiotherapeutic measures which are only too often disappointing.

(*b*) *Operative Treatment.*—In younger individuals the advisability of operative reconstruction of the fracture should always be seriously considered. The choice of operation must be based on the pathological anatomy of the fracture in each individual case.

Several types of operation may be briefly reviewed. (*a*) For malposition in the intermediate stages before union is complete, or some months after the injury, correction should be obtained after cutting through the line of the fractures in both fibula and tibia. (*b*) In long-standing cases with a pure eversion deformity, a *linear osteotomy* of the fibula combined with *cuneiform* resection of the *tibia* allows accurate restoration of the axis of the astragalus. (*c*) In long-standing cases with gross backward displacement of the foot showing the posterior marginal fracture, in addition to an osteotomy of the tibia and fibula, the projecting tibial block should be freely excised (see Fig. 9). (*d*) In a certain proportion of old cases with extreme deformity and pain, the reconstructive operation will resolve itself into an *arthrodesis* of the ankle-joint.

The cosmetic and functional results of the reconstructive operations for old Pott-Dupuytren fractures are variable. After the correction of an eversion deformity, in which free mobility of the ankle-joint is retained, the results are most gratifying. But where there is a bony block at the ankle, in my experience it is rare to be able to restore reasonable mobility. *Speaking generally, one finds that correction of deformity is followed by a relief from pain.* As in the recent fractures, adequate after-treatment is essential.

This brings to a conclusion our survey of the first group of ankle fractures, and before proceeding to introduce the second group I would suggest that in the discussion to follow extended debate is desirable on the following points: (1) The general standards of functional result obtained by conservative methods of treatment. (2) The rôle of operative interference in recent fractures. (3) The technical minutiæ of manipulative methods of reduction and retention. (4) Types of reconstructive operation applicable in the old fractures, and the general results obtained.

### *Fractures of the Astragalus.*

Owing to their comparatively low incidence in ankle-joint fractures as a whole, *fractures of the astragalus* do not lend themselves so readily to a broad presentation. It is well known that they occur either as *isolated lesions* or in *association* with injuries of other tarsal bones, and more particularly in combination with fractures of the os calcis. A simple anatomical grouping divides these injuries into (*a*) fractures of the body and (*b*) fractures of the neck. The mechanism of production is simple—viz., the upward compression thrust of a fall from a height on to the heel. The resulting disturbances may involve (1) the ankle-joint; (2) the astragalo-scaphoid joint, or (3) the subastragaloid joint. In the latter event the mechanical problems are those presented by the os calcis fractures, and therefore lie outside the scope of this discussion.

*Treatment.*—In the treatment of *recent* fractures of the astragalus it is impossible to lay down hard-and-fast rules. Each fracture must be considered on its merits. Conservative measures, in the earlier stages at least, are likely to prove effective. But where there is gross primary distortion of the astragalus, with the certainty of a future bony block at the ankle, operative interference must be contemplated.

*Old fractures* of the astragalus, giving rise to pain, deformity, and loss of mobility, are seen from time to time.

Such disabilities may be dealt with by appropriate operative treatment, which will generally include either the resection of a bony block (partial or total *astragalectomy*), or, in a few extreme cases, the surgical fixation of the painful and deformed joint (*arthrodesis*).

### *Conclusion.*

The subject of ankle-joint fractures is now before the meeting, and the points which appeal to me as worthy of special consideration have already been emphasised. The success of the discussion which is to follow will be measured not merely in terms of the brilliant results achieved by a few individual surgeons, specially gifted or fortunately placed, but rather in the impetus it may give to a renewed effort to improve the general standard of the treatment of such injuries. We are undoubtedly on the eve of a renaissance in the organisation and treatment of fractures, a movement which especially concerns the members of this Association. Let us confidently hope that soon the century-old dictum of Dupuytren will lose its sting, so that in speaking of ankle-joint fractures it may never be said that "under the most favourable circumstances they almost always leave deformity and lameness, which renders progression difficult or painful.".

### *References.*

1. Dupuytren: Ann. Med.-chir. des Hôpitaux et Hospices Civiles de Paris, 1819.
2. Astley Cooper: Treatise on Dislocations and on the Fractures of Joints, London, 1822.
3. Sydenham Society: Injuries and Diseases of Bones—Dupuytren. Translated by D. le Gros Clark, London, 1847.
4. Pott: Remarks on Fractures, London, 1768.
5. Ashhurst: Archives of Surgery, January, 1922, vol. iv., No. 1.
6. Maisonneuve: Arch. gén. de Médecine, 1840, i., 165, 433.
7. Tillaux: Quoted by Gosselin, Bull. de l'Acad. de Méd., Paris, 1872, i., 817.
8. Hönigschmied: Deutsch. Zeitsch. f. Chirurg., 1877, viii., 239.
9. Destot: Traumatismes du Pied et Rayons X., Paris, 1911.
10. Quénu: Rev. de Chirurg., 1912, xlvi., 367.
11. Chaput: Bull. et Mém. Soc. de Chirurg. de Paris, 1906, xxxii., 1047.
12. Lucas-Championnière: Bull. Soc. Anat. de Paris, 1870, xlv., 212.
13. Speed: Surg., Gyn., and Obstetrics, 1914.
14. Meissner: Beitr. z. Klin. Chirurg., 1909, lxi., 136.
15. Clavelin: Revue d'Orthopédie, July, 1924.
16. Tanton: Fractures du Membre Inférieur, Paris, 1916.
17. Arbuthnot Lane: THE LANCET, 1921, ii., 687.
18. Ferry: Revue de Chirurgie, 1924, lxii., No. 6.

*(To be continued.)*

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[1] See the ankle fractures reviewed by Ashhurst (Archives of Surgery, November, 1923, vii., No. 1).

# THE DOCTOR'S MOTOR-CAR.

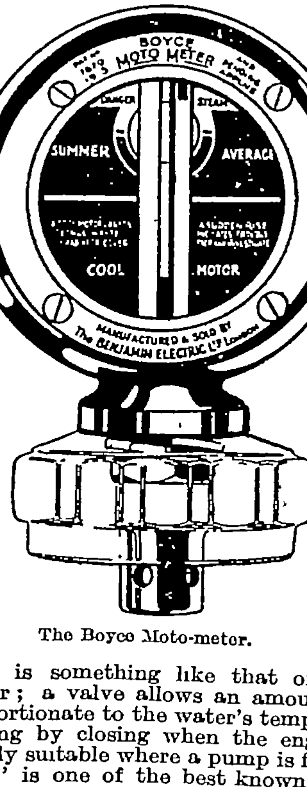
(FROM OUR MOTORING CORRESPONDENT.)

### *Cold Weather Accessories.*

MOST engines are difficult to start in cold weather, and hardly any are now fitted with priming-taps. Flooding usually makes matters worse, as it fills the combustion-spaces with liquid petrol. The new Lodge priming plug, costing only 2*s.* 0*d.* more than the ordinary sparking plug, with a screw-off head, is, therefore, an extremely useful invention, for all cylinders can be primed without removing the high tension leads in a few minutes.

This concerns cold engines, but practitioners who have to be ready to take the car out at short notice cannot really afford to let their engines go cold. Unless some method is available of protecting the car from frost at night the circulating system must be drained, and to fill it up again requires time. There are, broadly speaking, three methods of keeping the water warm: bonnet lamps, garage stoves, and water pipes. The last are expensive and can only be fitted by a builder and decorator; oil stoves are perfectly efficient in a small garage and cost about two guineas; Davy lamps to hang inside the bonnet cost about 20*s.* There are also bonnet lamps lit from the house-current, and an ordinary carbon filament bulb gives a good heat, but electricity costs more than paraffin or even petrol for this purpose. A hot fomentation on the induction pipe, by the way, enormously facilitates starting.

FIG. 1.

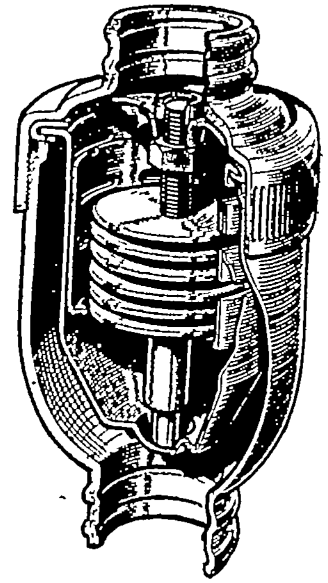


The Boyce Moto-meter.

Every car should have a radiator-muff made to fit it, with a flap that will allow the cooling-space to be varied. Any accessory dealer can have this done, and several dealers have stocks of muffs to fit all well-known makes. A radiator thermometer which costs a guinea (Fig. 1), is useful, since when the water temperature is known it can be regulated with the muff to the point which gives the most efficient running. Muffs cost about 15*s.* for small cars and 30*s.* if they cover the whole bonnet. The "thermostat," or automatic regulator of the water temperature, was, until recently, confined to the most expensive of cars; now it is made for about 30*s.* and fits into the rubber pipe between the radiator and the outlet. The principle is something like that of the aneroid barometer; a valve allows an amount of water to pass proportionate to the water's temperature, and retards cooling by closing when the engine is stopped. It is only suitable where a pump is fitted. The "motorstat" is one of the best known (Fig. 2). It works by means of multiflex bellows filled with a volatile liquid which is sealed in hermetically. When the temperature of the surrounding water rises, more of the liquid vaporises, thus the bellows expand when the water is hot and contract when it is cold. The action of expansion or contraction is communicated to a valve which governs the flow of water.

Cold weather troubles are not confined to the engine. Rain on the windscreen is bad enough, but sleet or snow may almost blind the driver. Before the days of windscreen wipers there were various preparations sold which would prevent water from staying where they had been applied, and they usually kept the view very much clearer than the rubber squeegee. There is now, however, a cheap wiper called the "Desmo," the rubbers of which are fed with some solution from a little reservoir. This should give a clearer view than bare rubber, besides needing far less operation, as one sweep will do for an hour or so, unless it is snowing. Failing any fitted device the cut surface of a raw potato or of an apple rubbed over the glass gives some temporary relief.

FIG. 2.



The Motorstat, showing the bellows and the passages through which water flows.

### *Chassis Lubrication.*

In the handbooks that they issue with their cars, makers instruct the owners to lubricate some bearings every 200 miles, some every 500 and some every 1000—and so on. It would be interesting to know whether there exists an owner so conscientious and obedient as to follow in detail these instructions. Chassis greasing has been immensely simplified since the introduction of the Enots, Tecalemit, and other systems, in which a set of nipples is fed by a grease-gun, but even this process takes a fair amount of time. Many busy practitioners grudge the time given to anything connected with maintenance of a car, and some of them never touch a grease-gun till they hear a squeak, and perhaps not even then. By the time a bearing squeaks, however, it has begun to wear very badly, and no amount of greasing afterwards will make up for the damage already suffered, and so the prudent owner-driver, however rushed, must make a compromise. Not all parts need the same attention. There are roughly three classes: those in constant motion, those in intermittent motion, and those that move only occasionally. The gear-box and back axle give little trouble, as they usually have large openings. It does not pay to over-grease, but at the same time the lay-shaft and crown wheel respectively must dip well into the lubricant, and inspection once a fortnight should be ample. The main universal joint, just behind the gear-box, and (if the gear-box is away from the engine) the clutch-shaft universal joints are liable to be forgotten. These parts are under constant stress and friction and cause a very unpleasant backlash when they get worn; they should be kept full of grease, which means replenishment at least every fortnight. The most important units are the springs, because there is nothing so irritating and so difficult to remedy as a spring squeak. If they are of the short "quarter-elliptic" type there is no greasing to do, but if they have shackles they must be greased thoroughly every week. It makes for easy riding to keep the gaiters full as well. The same applies to the steering, for this is also under intermittent stress and gives bad trouble if it gets loose

The brakes are about the only mechanisms that can be neglected for long periods with any degree of impunity, for they move so little that there is no particular danger in waiting for a squeak. It is not advisable, however, to neglect any part, and when one pedal has to work four brakes the less friction it encounters the better.

The road wheels hold grease well as a rule, but should not be left for more than three months. The clutch bearing, which most owners ignore, is in constant motion and takes the thrust of the clutch springs whenever the pedal is depressed Unless it is attended to about every fortnight it will wear loose and spoil the charm of driving by its noise. To sum up, to wait for a squeak is not necessarily dangerous, but it is expensive, as the car s life, and consequently its second hand value, may be greatly reduced.

### *Distinguishing Badges for Doctor's Cars*

The question whether doctors' cars should be distinguished by some kind of badge has recently been discussed in the motoring press. It is argued that ambulances and fire-engines are privileged in traffic, and that doctors are engaged on equally urgent duties. Moreover a doctor's car often has to be left at some distance from an official car park Again, those standing by victims of wayside accidents should be able to recognise a doctor and summon him to assist. It is doubtful whether medical men as a whole would press for such a badge. Even collective advertisement is against the spirit of the profession, and the degree of the elegance or luxury of his car would not be a useful addition to the ways in which the public may assess the skill or success of an unknown doctor The practitioners in any given locality are usually well known to the police, and these, on the rare occasions when the matter is really one of minutes, always seem ready to facilitate the passage of his car through traffic.

## HEALTH OF THE ROYAL AIR FORCE

Nearly all the items of the Report[1] on the Health of the Royal Air Force for 1924 show improvement on those for the previous year, and the Medical Service can congratulate itself on a distinct advance. The only seriously discouraging feature is the increasing number of accidents in flying and for this increase explanations are offered which will be mentioned later The report itself contains elaborate analyses of the data on which it is based, and a series of these documents, even for so small a force, will form a useful record.

During 1924 the average strength was 31,022 men, of whom some 9000 served abroad. The average strength for the three previous years was about 20,000, and compared with these years there were fewer men admitted to hospital fewer invalided, and fewer sick daily The total number of cases of disease and injury was 32 337, which is equivalent to a case ratio of 1010 per 1000 of strength (1227 per 1000 in 1923), but if cases of less than 48 hours duration be excluded the case ratio becomes 404 per 1000 as against 474 in 1923 The number of men daily on the sick list, which was 27 per 1000 in the three previous years, fell to 24 0 in 1924 This figure is for the whole force, but the improvement was seen both in Great Britain (10 5 per 1000) and abroad (37 2 per 1000), the average number of days' sickness per head was also reduced. These last figures illustrate the comparative unhealthiness of foreign stations, and this is further shown by the fact that the death rate abroad was 6 5 per 1000, whilst that at home was only 3 7

### *Accidents and Injuries.*

A regrettable increase in the mortality of the total force—it rose from 3 0 per 1000 in 1923 to 4 5 in 1924—corresponds with a greater number of flying accidents, and these have also helped to bring up the total injury rate from 65 per 1000 in the previous three years to 73 per 1000 in 1924 The number of injuries in the whole Air Force was, in fact, about 2250, excluding heatstroke and the like, and it is surprising to learn that about half of them were injuries to the legs, and that over 30 per cent. were incurred during athletics. There were only five men wounded by hostile gunfire and none of them succumbed; but there were three deaths amongst 22 cases of accidental gunshot wounds.

The percentage of injuries actually resulting from flying accidents on duty—namely, 7 5—seems comparatively small, but it must be remembered that 41 per cent of these—that is to say 60—were fatal, and that they occurred mainly amongst officers. During 1924 31 8 officers in every 1000 were injured whilst flying, and of these 14 4 were killed; whereas for airmen the total injury rate was only 2 per 1000 The number of flying casualties has increased steadily from 80 in 1921 to 100 in 1924, but it is stated that the number of "hours flown" has increased each year even more Aircraft, moreover, are increasing in size and carrying capacity, and consequently a greater number of personnel is exposed to the risk of injury in the event of a crash In 1924 four collisions in the air accounted for 10 deaths, whereas no deaths from accidents of this kind were reported in 1923 It is stated that the number of hours flown per fatal accident was higher in 1924 than in any of the previous years.

### *The Specific Diseases*

For all types of venereal disease the case incidence showed a reduction from 26 2 per 1000 in 1923 to 22 3 in 1924 The number of primary cases—i e, those reporting for treatment for the first time after contracting infection—fell as low as 16 3 per 1000, which decrease was largely accounted for by a fall of 2 1 per 1000 in the rate for primary gonorrhoea. The case incidence abroad remained as high as 30 per 1000, compared with 19 2 at home; but the steady general improvement in the last four years shows that the measures (including prophylaxis) described in the report for 1921 are having their effect, whilst the contrast with the naval figures—the number of fresh venereal infections in the Royal Navy[2] in 1922 ("Total Force") was 83 per 1000—is very remarkable Of upper respiratory infections there was in 1924 a general increase everywhere except in Iraq The Mediterranean littoral is the most unhealthy area from this point of view, and India is the healthiest. Influenza accounted for over 1000 cases throughout the Air Force, but there were no deaths from this cause Pulmonary tuberculosis affected 42 persons, four of whom died.

Interesting figures are shown of disease and injury amongst men of different ages and trade groups, from which it appears that the highest disability rate—from sickness and injuries—is found amongst boys, and that the lowest sickness incidence is found amongst aircraft hands. The age group in which disease is most rife is 24–25 years, and for these ages the number of primary cases of venereal disease is 43 per 1000 The healthiest group is of men from 21–22 years

### *Unhealthy Foreign Stations*

As has been remarked, the foreign stations account for a high percentage of disability The disease rates abroad were 72 per cent. and the injury rates 22 per cent in excess of those for the home forces, and at Basrah, in Iraq, the most unhealthy of the stations, there was amongst the strength of 570 a disease incidence of over 108 per cent., apart from cases lasting under 48 hours; 74 per cent. of these were accounted for by sandfly fever, dysentery, and malaria. Throughout the Air Force abroad the incidence of malaria was 118 per 1000, which was a slight increase, but there was a distinct reduction in the number of primary cases. A steady annual reduction in sandfly fever has also occurred, probably on account of prophylactic measures suggested in the report for 1922. Amongst the features of the account of the forces abroad is the record of an outbreak of 40 cases of bilharziasis at Hinaidi, the largest station in Iraq, where some 2000 men are stationed.

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[1] Report on the Health of the Royal Air Force for the Year 1924. London H.M Stationery Office 1 p. 84. 4s.

[2] The Lancet, 1925 ii., 987

The report concludes with a description of the procedure [3] in examining recruits for flying and of the results obtained both then and at the annual re-examinations for officers and airman pilots. A short account is also given of the attempts being made to improve accommodation and sanitation. That such attempts are on the whole successful is evident from the envious remarks often made by other members of H.M. Forces abroad about the quarters enjoyed by the Air Force.

## IRELAND.

(FROM OUR OWN CORRESPONDENT.)

### *Medical Registration in the Irish Free State.*

IT is stated that the Government of the Irish Free State is about to introduce a Bill for the purpose of prolonging the present system of medical registration by six months from next February, and of empowering the Executive Council to carry it on for a further period of three months, if this be deemed necessary. It is hoped that within the time thus allowed it may be possible to devise a satisfactory system to replace the present one. It is known that the Government and representatives of the medical profession have been in conference on several occasions, and it is hoped that a scheme satisfactory both to the Government and to the profession may be devised.

### *County Medical Officers of Health.*

The Department of Local Government and Public Health has issued to the various county councils a circular on the appointment of county medical officers of health. Attention is drawn to the provisions of Section 21(1) of the Local Government Act, 1925, which lay down that "the council of every county shall appoint, with the approval of the Minister, for every county health district in such county a medical practitioner duly qualified as such and with such other qualifications as may be prescribed, to be the superintendent medical officer of health of such county health district, and such officer shall be known as the county medical officer of health, with the distinguishing name of such county health district." The Minister is satisfied that the success of the new system of public health administration will largely depend on the proficiency of the persons chosen to fill the position of county medical officer of health. The possession of the Diploma of Public Health or equivalent degree will be an essential qualification, and should be supplemented by practical experience. The Rockefeller Foundation has generously undertaken the training of three medical men in public health work. Furthermore, it is recognised that the position of the existing tuberculosis officers possessing the D.P.H. is entitled to special consideration, and arrangements have accordingly been made with the Society of Medical Officers of Health to enable such officers seeking appointment as county medical officers to acquire further administrative experience and a more intimate knowledge of the manifold activities of public health work. These measures are calculated to ensure for the senior positions of the health service of the county a supply of highly qualified competitors. In the circumstances the Minister has decided that, as a condition precedent to his approval, the principle of a selection committee, which has already been found satisfactory in connexion with dispensary posts, shall apply to all appointments as county medical officers of health. A Bill will shortly be introduced to regulate the future procedure concerning appointments of officers of local authorities. The work in some of the smaller counties will not be such as to afford whole-time employment, and in these cases recourse will be had to a joint appointment with a neighbouring county, accompanied by equitable adjustment of the cost. On the other hand, in a county of extensive area it will rest with the county council to consider the question of subdivision. The Minister does not expect that any appointments can be made before April 1st, and he will communicate further with the county councils as to the steps they should take.

### *Irish Medical Committee.*

Several grievances from which Irish medical men suffer were discussed at a recent meeting of the Irish Medical Committee. For some time past Poor-law medical officers who act as registrars of births, deaths, and marriages have been discontented with the remuneration given for their services. Recently attempts have been made to increase their clerical duties, while some of their sources of emolument have been taken from them. Their fees have remained unchanged since the introduction of the system of registration, and are much less than the fees paid in England. The discontent is so great that it is not unlikely that many registrars will resign their posts unless the Government make some attempt to satisfy their demands. If the medical registrars resign, the system of registration will suffer much in efficiency. The Post Office authorities have recently notified the medical attendants on their postal staffs that a lower capitation rate will in future be paid to post office medical attendants who are attendants to the Civic Guards than to those who do not hold both appointments. There is no justification for this lowering of a scale already poor. The Irish Medical Committee also expressed dissatisfaction with the remuneration paid to medical inspectors on the staff of the Department of Local Government and Public Health. The best paid of these gentlemen are paid on the same scale as their predecessors of 70 years ago. On the other hand, in some recent appointments the scale has been lowered, and inspectors have been appointed at a salary of £500 a year with *second*-class travelling expenses.

### *A Board of Health in Difficulties.*

The County Galway Board of Health seems to have involved itself in deep financial difficulties. It is found that its income for the current financial year will fall short of its expenditure by some £12,000 or £15,000. In these circumstances the Board has simply made a request to its various officers and employees that they should consent to a diminution of 10 per cent. in their salaries for the next three months. It is suggested that unless they agree to this demand they are likely to get nothing at all. It is hardly to be believed that the Department of Local Government and Public Health will permit the health authority of the largest administrative area in the Free State to evade its liabilities by an appeal to the charity of its employees. That the Board has been allowed to go so far in its mismanagement is evidence of a lack of proper supervision by the Department. The only way out at the moment appears to be the suspension of the Board of Health and the appointment of a commissioner to administer its affairs.

## BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

### *Alcohol and Tuberculosis.*

SINCE America introduced the "dry" law the statistical data on the occurrence of tuberculosis in conjunction with alcoholism have been the subject of lively study in several European countries, and particularly in Hungary. Prof. Dr. Julius Donath, whose name is well known abroad from his studies on the rôle of cholin in the causation of epilepsy, has just published the results of his researches. He proves by facts and figures that the effects of cleanliness, good nourishment, fresh air, and sunshine in the treatment of tuberculosis can all be counterbalanced by the action of alcohol. He refers to the observation of Martin, that although the Chinese are continually sinning against the rules of hygiene, and their food is mostly unwholesome owing to their poverty, nevertheless tuberculosis is incomparably less frequent in China than amongst European people. The only weapon of the Chinese against the disease is sunshine (which they have in abundance), and their comparative freedom may be attributed in the first place to their modest consumption of alcohol. According to Donath, the object-lesson of the intemperate use of alcohol has been taken to heart by few countries, a notable exception being Finland, which prohibited alcohol as soon as it became independent. Two other Scandinavian countries, Iceland and Norway, have been prevented from enforcing prohibition by reason of economic causes. Their main article of export, fish, is purchased by their greatest customers, Spain and Portugal, only under the condition that they allow heavy wines from those countries to be imported into their lands. The only important State where the effects of dryness can be properly studied is the United States of America. Here it can be shown with most reliable figures that the tuberculosis mortality decreased between 1914 and 1923 by more than 100 per cent. The huge sums which were previously spent on alcohol in the U S.A. (about two milliards dollars yearly) are spent now in improving the conditions of living. Hungary provides a contrast to such blessed conditions. The mortality from tuberculosis is ever on the increase, and there has been a rise from 2050 deaths from the disease in 1921 to 3203 in 1924. It is interesting to note that according to the official statistics tuberculosis mortality in the Jewish population of the country was 21 3 per 1000, in Protestants 38 5, and in Catholics 55 1. Dr. Donath's report has made a deep impression upon the Hungarian Government, and in well-informed circles it is taken for granted that a Bill will shortly be introduced that will greatly restrict the consumption of alcohol, by prohibiting the sale of liquors in certain hours of the day, and by raising the tax, which will incidentally provide means to support public welfare institutions.

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[3] THE LANCET, 1925, ii., 748.

### *The Problem of "Es."*

Dr. George Groedeck, the eminent psycho-analyst, gave an address in the Circle of Lawyers on the treatment of bodily and mental diseases. He said that psycho-analysis cannot, by any means, be applied in lieu of the methods hitherto used; it may be resorted to only in cases where these methods are of no avail Such cases are those in which there is a tendency in the organism of the patient towards a certain disease; the patient directly wants the disease, he wants to pose as the centre of events. Other cases are those in which the patient desires to atone for something, and therefore feels a certain velleity towards a certain disease. An example of this was the woman who wanted to kill a man, but on encountering him, when she ought to have acted, slipped on the pavement, fell, and broke her arm, which she wanted to raise against another human being. This was not caused solely by the wish for atonement, but something else also was accountable for it—namely, the moral feeling which was still present in the woman, and which wanted to prevent her committing the crime In both cases the motive power is something incomprehensible and indefinable, which takes root in the extreme depth of the human being, of the human organism—what Nietsche calls *Es* This is not the conscious Ego, nor the Freudian subconscious, but rather something metaphysical, that cannot be denoted by any other term than that of Nietsche. This *Es* is responsible for those situations in which medical science stands impotent; in which everything done for the patient proves vain because *Es* moves towards the disease. The task of psycho-analysis is to direct the attention of the patient to the intention of the *Es*, and to deflect it in another direction. It may happen, said Dr. Groedeck, that psycho-analysis will be swept away by the future and that we and our method will be entirely forgotten; but this cannot disturb us, because we are living in the present. We are surveying this difficult problem from this point of view, and we are trying to solve it.

### *Imminent Strike among the Junior Dressers of the University Clinic.*

The critical economic position of Hungary is being felt in the universities. Whilst in pre-war times sacrifices for the advancement of science knew no limits, and the Budapest University was one of the first to adopt all new appliances regardless of cost, the situation at present is such that only the most necessary outlays are approved by the Ministry. Economy is the principle in every line, and unfortunately it is very detrimental to the training of medical students. The last Order of the Ministry of Public Instruction related to a reduction of the number of junior dressers in the university clinics. Out of about 300 dressers only 25 had some nominal salary, and these were all older dressers, who had acquired their medical diploma several years ago and had served in this capacity for more than three years. The Minister wanted to dismiss nine of them in order to alleviate the budget of the universities. As the professors of the affected clinics objected that this would endanger the successful teaching of the students, a conflict arose which went so far that it was feared that the rest of junior dressers—about 300—would declare solidarity with the dismissed ones, in which case the teaching would have suffered a great deal. This Order to the dismissed dressers was most offensive, for the Ministerial Order wanted them to continue working without any salary. If they accepted it, this would mean their degradation, because having a salary gave a certain distinction to the advanced dressers. The medical staff of the university clinics—professors, adjuncts, assistants, practicants, and dressers—held a meeting at which, after several fiery speeches and hot remarks, the professors succeeded in persuading the younger clinicians to refrain from overhasty steps, because there was hope that the Minister would retain the paid dressers in their position if he heard about the meeting and the atmosphere which ruled there. Direct negotiations were then opened between the Premier himself, Count Bethlen, and Count Klebelsberg, Minister of Public Instruction, and eventually the Order was withdrawn Thus 130 million crowns—about £520—saved the Budapest University from an academic disaster.

### *Tutocaine in Ophthalmology.*

The second ophthalmological clinic of the Budapest University has applied tutocaine in 250 cases. The results, as recorded by Prof. Hoor, the director of the clinic, are not very satisfactory. A report, published in the *Orvosi Hetilap*, No 36, 1925, supports the view that tutocaine cannot compete with cocaine as an ophthalmological anæsthetic. Neither is it superior to holocaine; on the contrary, in the deeper parts of the eye tutocaine failed to produce anæsthesia, whereas cocaine and holocaine had acted promptly. It can be recommended, however, to produce anæsthesia in cases of operations performed in the superficial layers of the cornea and conjunctiva. When injected, its irritant effect on the tissues is greater than that of novocaine, while it does not render the field so bloodless. Its only advantage over novocaine is that its anæsthetising power is of longer duration; on the other hand, it may compete with it from the point of view of cost, because, according to some authors, half the quantity of tutocaine suffices to attain the same effect as produced by novocaine.

### *Compulsory Notification of Malaria.*

The Minister of Public Welfare has issued an Order enacting the compulsory notification of malaria in towns and cities to the chief medical officer, and in the country to the district physician. The Minister was induced to do so on account of the great number of cases of malaria occurring at some parts of Hungary, showing a decided epidemic character. If notifications are made on a wider scale the Minister will make provisions for the enlightenment of the rural population through popular lectures and instructive films.

## SOUTH AFRICA.

(FROM OUR OWN CORRESPONDENT.)

### *Cape Town and Venereal Disease.*

CAPE TOWN appears to have taken a retrograde step in regard to the treatment of venereal disease. A good deal of pioneer work in this respect has been done by the South African branch of the National Council for Combating Venereal Disease, now to be known as the South African Society for Social Hygiene. Under the auspices of its council venereal clinics were established a few years ago in a convenient quarter of the city, and voluntary help was given by medical men and women. Subsequently, the health department of the Cape Town Corporation decided to take over the work and appoint their own medical officers. This they did, retaining some of the voluntary workers on their paid staff. A few months ago the health committee of the city council, against the advice of Dr. Shadick Higgins, their medical officer of health, and in defiance of the wishes of a representative deputation, decided to close the original clinic and dispense with the services of the two medical women who had successfully conducted the tri-weekly clinics for women for the past four years. The reason given for this move was that of economy, and it was urged that a clinic at the City Hospital would meet the needs of both men and women and save the fees now given to part-time medical officers. It remains to be seen whether the attendance of patients under these new conditions will maintain their average of the past few years.

### *Self-Government in a Leper Institution.*

A leper institution in the Transkei, S.E. Cape Colony, has of late years been the scene of an interesting experiment in administration. The institution is practically governed by the lepers themselves. Five headmen are elected from amongst the patients and these are responsible for the discipline of the whole. Any patient breaking the rules is tried by these headmen in the presence of their fellows and the punishment, if any, is determined by the headmen and patients in council. There is a right of appeal to the superintendent and, through him, to the Union Government, but this is practically never exercised. Admirable results have followed the introduction of what in schools would be called the prefect system. Under the old system of control 40 native guards serving under six European officers were kept constantly employed, and a man-proof fence enclosed the whole leper location. Under the new régime the guard has been reduced to 18 natives, of whom half are patients, and two European officers. The man-proof fence has been replaced by one of the usual sort, and beyond a roll call every morning and evening no methods are taken to prevent escapes. This enlightened system of control has now been in force for four years and owes its inception to the superintendent, Mr. J. W. Macdonald, who laboured hard for improving the comfort and happiness of the lepers. The statistics of escapes before and after his arrival testify to his success. Previous to 1922 as many as 60 lepers would attempt escape during the year. Since that year the highest number reached is six and the lowest three. The institution is, moreover, run on lines of sound economy. Large farming operations are undertaken, and all butter, milk, meat, and vegetables required for the patients and staff are supplied locally. Trees are also grown for firewood. Most of the work is done by the more able-bodied amongst the lepers and these are paid for their labour. The money thus earned is sent home to their relations and forms a link between the sufferer and his friends, which is much valued by both. A shop on the premises provides the lepers with any little luxury at cost price. Schools and creches are provided for the younger inmates.

### *Visit of the Medical Secretary of the B.M.A.*

Dr. Alfred Cox, medical secretary of the British Medical Association, is at present on a visit to South Africa. Dr. Cox's ten days on the Rand were occupied in visiting the Rand hospitals, the medical school, the South African Institute of Medical Research, the Miners' Phthisis Bureau, and the Witwatersrand Native Labour Association Hospital. He was entertained to lunch on Nov. 25th, at the Scientific and Technical Club, Johannesburg, by the Witwatersrand branch of the B.M.A., and he was present at the annual dinner of the branch held on Nov. 26th at the Carlton Hotel, Johannesburg. At this dinner about 100 members and guests were present, and the chair was occupied by Sir Spencer Lister. Sir Julius Jeppe proposed the toast of the British Medical Association. In reply, Dr. Cox said that he hoped to see London made the centre of post-graduate work in the Empire. The B.M.A., he said, had been formed on the model of the British constitution. They were a collection of families of medical men scattered over the Empire. In England, as the parent body, they were called to help the other branches. But they never interfered with them. They laid great stress on the fundamental maxim that the patient came first.

### *Bloemfontein Hospital Board.*

At the monthly meeting of the Bloemfontein Hospital Board held on Nov. 24th, under the presidency of the Rev. F. P. Roth, strong opposition was voiced to a recommendation from the medical committee advising that patients should either be free patients or should pay a minimum of 10*s.* a week. The committee held that those patients paying 7*s.* 6*d.* a week should either be made to pay the full 10*s.* or be made free patients. Several members of the board took exception to this recommendation of the medical committee on the grounds that it was unfair to label as paupers those who could only afford to pay less than 10*s.* Dr. van Rippen, speaking as a medical man, said that to his knowledge many who did not at present pay 10*s.* a week to the hospital could well afford to do so. The recommendation was not accepted.

### *Training in Mother-Craft.*

To Cape Town belongs the distinction of having the first mother-craft training centre in South Africa. This has been recently started through the untiring efforts of the Child Welfare Protection Society, which is the Cape Colony branch of the National Council of Child Welfare. A wing of the Society's home for infants and young children, known as the Lady Buxton Home, has been adapted for teaching purposes and a newly added hostel provides accommodation for the students. These include (1) trained nurses who take a four-months' course in infant dietetics; (2) midwives who remain for six months; (3) untrained students who wish to qualify for the position of domestic nurses. Their period of training lasts one year, and includes the care and management of infants from birth up to the age of 6 years.

HOSPITAL ACCOMMODATION AT SWINDON.—There has long been a serious hospital problem at Swindon, the headquarters of the Great Western Railway works, with a population of some 90,000. The Great Western Hospital of 15 beds was established by the railway company to meet the needs of their employees, but their wives and children have to make use of the Victoria Hospital, which has 25 beds and seven cots. The combined accommodation is entirely inadequate, and proposals have been made for the enlargement of one or other of these institutions. Two years ago Mr. Roden Orde recommended the establishment of one hospital for the whole population with from 150 to 200 beds. The Swindon Town Council has just appointed a committee to consider the possibility of establishing such a hospital, and its cost.

# SEXUAL OFFENCES AGAINST YOUNG PERSONS.

## REPORT OF THE HOME OFFICE COMMITTEE.

THE Report of the Departmental Committee on Sexual Offences against Young Persons sets out fully the conclusions reached by the Committee after considering the evidence of some 75 witnesses, including judges, magistrates, barristers, chief constables, medical officers, police surgeons, and representatives of the Church of England, the Home Office, Board of Education, local authorities, the Six-Point Group, and other bodies. The recommendations of the Committee are summarised in Section IX. of the report as follows:—

### FORTY-THREE RECOMMENDATIONS.

1. That the annual criminal statistics should contain a separate table giving complete returns as to sexual offences which are against young persons, and that the statistics for "attempts" should be shown separately from those for the full offence.

2. That it should be made an offence, triable summarily and governed by the law as to indecent assaults, for a male person to commit an act of gross indecency with a young person, male or female, under 16; that the young person shall not be prosecuted for being concerned in the offence.

3. That courts of summary jurisdiction shall have power to grant a separation, maintenance, costs, and the legal custody of her children, to a wife whose husband has been convicted of incest, carnal knowledge, or of the attempt, or of a grave indecent assault, upon one of his daughters.

### *The Age of Consent.*

4. That the age of consent shall be raised to 17, with amendments to the law consequent thereon.

5. That the defence of reasonable belief that a girl was 16 or over shall be abolished; that where there are extenuating circumstances a young man found guilty on indictment and placed on probation, shall not have a conviction registered against him.

6. That 12 months shall be the time limit for taking proceedings under the Criminal Law Amendment Act, 1885, Section 5 (1)

7. That the jurisdiction of petty sessions shall be extended to try, where the accused consents, offences of gross indecency; and of attempts to have carnal knowledge of a girl under 13, or under 16; and of attempted incest with a girl under 16. That power be given the justices to imprison up to 12 months for attempted carnal knowledge and for attempted incest.

8. That quarter sessions shall have power to try all sexual offences against young persons, provided that the Court is presided over by a recorder, or by a chairman or deputy having professional legal experience.

9. That in indecent offences properly trained women shall take the statement of girls; but where this is not possible, that a woman shall be present while the policeman is taking the statement

### *Examination by a Medical Woman.*

10. That where a medical examination of a girl is necessary it should, whenever possible, be carried out by a woman doctor.

11. That where proceedings are instituted by summons, such summons shall be made returnable early.

12. That chief constables shall be asked to consult the Director of Public Prosecutions in cases of defilement of girls under 13, and of indecent offences upon a number of children, and of offences in which disease has been communicated to children or young persons.

13. That in all except the simplest cases a solicitor shall be engaged to assist the prosecution in sexual offences against young persons.

14. That separate waiting rooms for young persons shall be provided by all courts.

15. That magistrates shall, whenever possible, take all cases of sexual offences against young persons at a fixed time convenient to the child and its guardian; and that in petty sessional courts with short lists these cases shall be taken first, or after the short cases have been disposed of That where the evidence of a young person is necessary and available, a remand shall not be granted till his or her evidence has been taken.

16. That courts of assize and of quarter sessions shall take these cases first, whenever possible, after the pleas of "Guilty" or after the emergency cases have been disposed of.

17. That courts should be reminded of the power to dispense with the attendance of young persons under Section 31 of the Children Act, where their evidence is not required.

18. That young persons shall not be required to attend before the grand jury, provided that the bill shall not be ignored without hearing the evidence of the young person.

### *Procedure in Court.*

19. That attention shall be paid to the position of the young witness in court, so as to lessen the distance the voice has to carry, and so that he or she shall not be face to face with the accused at close quarters.

20. That a suitable woman shall always be present in court to the knowledge of the girl witness. That a matron shall be available to take charge of young witnesses while waiting to give evidence.

21. That wherever a woman is entitled to sit as a magistrate, she should be asked to attend on the bench when girls are concerned in a case of indecency.

22. That, subject to certain reservations made, the court shall be cleared when young persons are giving evidence as to an indecent offence, and that at no time shall a young person under 16 remain in court, unless his or her presence is specifically required.

23. That, wherever justifiable, the evidence of a child who can tell a connected story shall be taken upon oath.

24. That those initiating or conducting prosecutions should bear in mind that in view of the decision of the Court of Criminal Appeal in R. v. Crocker, the absence of corroboration is not a bar to the securing of a conviction.

25. That the extreme difficulty of bringing to justice an offender committing offences against a number of children separately, shall be rectified by Parliament.

26. That neither the name, address, nor photograph of a young person concerned as a witness, or as a young offender, in these cases shall be published, except by the express authority of the court.

27. That the words "from birth or an early age" and "from an early age" shall be deleted from Section 1 (c) and 1 (d) respectively, in the Mental Deficiency Act, 1913.

### *Mental Report before Sentence.*

28. That after conviction, but before sentence, the bench shall remand, for a mental examination and report, all cases of indecent exposure, all sexual offenders previously found guilty of an indecent offence, and all cases in which the court suspects mental disease, disorder, or defect.

29. That all courts shall make arrangements for the services of a mental expert to be at their disposal.

30 That those who commit repeated indecent offences against young persons should be subject to prolonged detention in suitable institutions.

31. That the penalties imposed for sexual offences against young persons should be adequate to the circumstances of the case.

32. That legal aid, and better facilities for appeal, for offenders tried summarily, should receive consideration.

33. That courts trying sexual offences against young persons shall refer to the petty sessional court the question whether the further protection of the young person is necessary; and that the justices shall take action, if the case requires it, in the interests of the young person or of his or her brothers or sisters.

34. That the words "unlawful carnal knowledge" shall be inserted before the words "seduction or prostitution" in the Criminal Law Amendment Act, 1885, Section 12, and in the Children Act, 1908, Section 58 (1) (g).

### *Amendment of Children Act.*

35. That the Children Act, 1908, shall be amended as follows: (a) First schedule.—Incest to be added as an offence. (b) Section 20.—The police to coöperate with local social workers where it is necessary to remove a child temporarily to a place of safety. (c) Section 21.—Payment from public funds to be available for a young person committed to the care of a "fit person" (under Sections 21, 58 (7), or 60, respectively); the address of the young person so committed to be notified to the court; institutions which represent the "fit person" to be approved, registered, and regularly inspected. Power to be given to take action for the protection of young persons offended against by the man cohabiting with the mother. (d) Section 58 (1) [illegible]— The words "is found wandering and" to be deleted before the words "having no parents." (e) Section 58 [illegible]— Incest, unnatural offences or indecent assault by a father on one of his own children to be a ground for taking [illegible] of protection on behalf of his sons or daughters. (f) Section 58 (1) (g).—Procuring or aiding or abetting by either [illegible] to be a ground for taking action on behalf of [illegible] the children who are in moral danger.

36. That there shall be power to deal with [illegible] who are beyond control as outlined in the [illegible]

*Condition of Special Homes.*

37. That voluntary societies and workers should discriminate more carefully as to the children sent to special homes, and as to older girls sent to rescue homes; that they should receive reports as to progress, and should make arrangements for the return of the child or young person to a more natural environment as soon as possible.

38. That where the child victim of an offence has to be removed from its home, boarding out under proper safeguards shall, where possible, be resorted to; that the age limit for boarding out in the Children Act should be abolished.

39. That children committed to special homes shall only remain until they have recovered, and shall then return to their parents, or be boarded out, or be sent to an ordinary home or industrial school.

40. That where the court makes a probation order conditional on residing in a home, it shall be one which is approved, registered, and inspected; and that the period of training shall not exceed six months without careful review by the court.

41. That the statutory requirements as to the care of children employed in entertainments shall be extended to include the care of young persons up to 17.

42. That there should be better supervision in parks, in fairs, in cinemas, and in school precincts.

43. That student teachers should receive instruction at college as to the best methods of giving older children, individually, instruction on matters of sex.

We comment on another page upon some medical aspects of this many-sided report.

# Public Health Services.

## REPORTS OF MEDICAL OFFICERS OF HEALTH: A BRIEF SURVEY.

THE Ministry of Health has issued the usual circular with regard to these reports for 1925, an exceptional feature being the intimation that a survey report, indicating the measure of progress made during the preceding five years, is required for the year 1925.

We have commented on many of the 1924 reports. The year 1924 was a wet and cold year, and was characterised by a considerable prevalence of influenza in the first quarter, followed later by an increased prevalence of encephalitis lethargica in many districts. The death rates were in consequence not usually so favourable as in 1923, and respiratory diseases were responsible for increasing both the general death-rate and infant mortality. Some districts, however, succeeded in scoring their lowest infant mortality rates on record. Typhoid fever of the usual type was not prevalent, but a number of outbreaks of paratyphoid were reported. Occasionally these were associated with carriers and milk infection, but in many cases they occurred in the early summer, affecting chiefly women and children, and no food cause could be found. Small-pox of a very mild type was endemic in several districts, but the virulent type appeared in a small outbreak at Willesden. The question of immunising for diphtheria has made some progress. It is now used for the staffs of many fever hospitals, and has been applied in the case of Edinburgh to school-children on a large scale. Serum immunisation against measles has also been used in Glasgow.

There appears to be an almost general shortage of hospital accommodation for surgical tuberculosis. As yet the results obtained by the training of tuberculous ex-Service men do not appear to be very satisfactory. Some very high death-rates from cancer were reported, and local cancer investigation committees have been established in several districts. Venereal diseases show a decline, especially in new cases of syphilis, and the better facilities provided at the centres are reflected in the increased number of attendances per case.

As regards maternity and child welfare, it cannot be said that much progress has been made in preventive midwifery, designed to cope with the high materna and neonatal mortalities. Several districts report a difficulty in stopping the practice of "handy women." There are signs of better coöperation between the county councils and the urban districts responsible for maternity and child welfare schemes. Many of the county councils are making strenuous efforts to attain the ideal that no village shall be without its properly qualified nurse-midwife, and for this purpose the services of the voluntary nursing associations are being well utilised. Light treatment is being installed at many of the centres for the use of children of pre-school and school ages. Considerable progress has been made in many districts in the organisation of complete schemes for dealing with crippled children. An advance has also been made towards the unification of the public medical and nursing services.

Among school-children there is much need for more complete dental treatment, and several school medical officers refer to malnutrition in school-children due not to insufficient food but to the wrong kind of food.

The introduction of the regulations for graded milk has certainly given a fillip to the improvement of the milk-supply. The sale of graded milks has made little headway, but, on the other hand, the agricultural committees of many county councils have held clean milk competitions and stirred up an interest in this question by means of lectures and demonstrations. The examination of milk for tubercle bacilli shows that there is no decrease in the frequency of tuberculous udders, and the reintroduction of the Tuberculosis Order is anticipated with satisfaction. Rural districts are beginning to take up the periodical inspection of milch cows.

The housing question is still a great difficulty. Few districts have been able to catch up any arrears, and the majority have been unable to provide for the natural increase of the population. Here and there, however, there was a more optimistic note. The smoke abatement question remains much as it was. The regional area scheme for the Manchester district which aroused some interest has been turned down since.

The need for education of the public in health matters has been urged in many reports, and Blackburn has given a notable lead in this respect. Perhaps the chief gains of the year have been improvements in administration. One example is cooperation between the local authorities and the voluntary hospitals and nursing associations; another is the pooling of hospitals for infectious diseases in county areas. The establishment of the Sheffield Medical Advisory Committee is another good example of coöperation, and we have already mentioned the organisation of schemes for cripples and the unification of the public medical and nursing services.

## SCHOOL MEDICAL SERVICE.

### A SURVEY OF 1924.

THE ever-increasing scope of school medical work in addition to the routine examination of every child at least three times in the course of his school career is becoming one of the prime factors in preventive medicine. Each year sees a closer linking-up with antenatal and child welfare schemes and a more complete coördination of all health activities, both public and voluntary, bringing the medical officer into close touch with the general practitioner and the consultant and making for harmony in the common interest of prevention and of early recognition and treatment of disease. The school has now become the clearing house for incipient diseases.

Not least of the great services rendered by school medical workers is the quickening of interest amongst the lay public in general and personal hygiene. Throughout the country 60 per cent. of the parents attend the medical inspection and greater advantage is being taken each year of the wide facilities provided for advice, help, and treatment. The mental attitude of the public has undergone a complete change;

personal uncleanliness and verminous conditions are now viewed with shame. Advice and practical teaching on personal hygiene, dietetics, clothing, lighting, exercises, &c., together with better general hygiene have already resulted in a widespread general improvement in the physique and bearing of the present-day elementary scholar, while there has been a marked decline in mortality at school and pre-school ages during the past 20 years. The child of yesterday as the mother of to-day is putting into practice the lessons already learned.

The enormous amount of dental caries gives colour to the belief that nature is finding little use for the teeth and is now treating them as foreign bodies. Whatever be the cause or causes of the decay, dental caries is being tackled in Herculean manner by the school dentists and much propaganda is carried on by them in the way of lectures to the parents. The reports of school medical officers leave one in no doubt as to the advisability of removal of septic tonsils and adenoids. Aural surgeons are unanimous in their condemnation of the offending member, but many and varied investigations by S.M.O.'s have traced septic absorption from the throat as at least a large contributory factor in rheumatism, chest and lung complaints, anæmia, malnutrition, general physical and mental debility. Operative treatment is usually in the hands of experienced surgeons and skilled anæsthetists, while the general aim is to keep the child in bed from 24 to 48 hours following operation.

Ionisation as a means of treatment in selected cases of otorrhœa seems to be favoured by an increasing number of aural surgeons, while many ophthalmologists point the need for the very early treatment of squint. Dirt diseases and infections—e.g., impetigo, scabies, blepharitis, and conjunctivitis—all show a decided decrease during 1924, and ringworm of the scalp is a rapidly disappearing disease. Increased inspections by nurses, together with the help and observant coöperation of teachers, are tending to minimise the spread of infections in the schools, and even the control of small-pox epidemics was helped by keeping the schools open and so ensuring better supervision of the children.

Special classes and residential schools are widely provided for the adequate training of defectives, both physical and mental. Open-air classes and schools are held where the batteries of nature are trained on the invasive powers of disease, and it is from such institutions that much of our knowledge is coming—on the best lines of tackling these defects. Since Sir George Newman stated that between 80 and 85 per cent. of all crippling defects could be prevented or cured, many authorities have started orthopædic schemes under the direct supervision of skilled surgeons and with remedial clinics and numerous training centres. The financial economy of these special means of preventing, easing or curing chronic invalidism is strongly shown in many of the school reports. Whether the bombshell of Circular 1371 will disintegrate the rising structure remains to be seen, but if the suggested "economy" falls on the medical work, it will be the most wasteful economy the country could adopt; even the exclusion of the 3- to 5-year olds would remove children at the age when most effective preventive and curative work can be undertaken, and there is, at present, no other means of bringing these children under medical observation in the mass.

The mass of material and the excellent opportunities in the examination of these great numbers of everyday children has resulted in many original observations, and few reports will be read wherein some special work is not recorded. Rheumatism has claimed wide attention, and in Bristol, Birmingham, and London, amongst many other places, useful contributions have been made on the hereditary and environmental factors as well as on early diagnosis and treatment at open-air institutions. Dr. Vincent Coates, working in conjunction with Dr. R. E. Thomas, the deputy S.M.O. of Bath, finds a useful diagnostic sign in the presence of small nodules over the spinous processes of the vertebræ and along the subcutaneous border of the ulna. Encephalitis lethargica, with its 50 per cent. mortality-rate, has called for some careful reports; in Dr. F. C. Shrubsall's (London) series of 103 cases, only 42 had apparently completely recovered, and amongst 57 cases observed by Dr. H. Herd, of Manchester, only 8 could be described as normal.

The complex question of "fitness" has attracted many observers, and Dr. J. G. Woolham, of Manchester, has evolved a series of anatomical measurements and physiological tests which, when applied to a series of boys under medical attention, showed a close positive association with the findings of purely clinical examination by independent medical men. Dr. Percy Scott examined the blood pressure in 1633 boys in London and finds that the commonly accepted rule that blood pressure rises uniformly throughout life is not supported, but that during adolescence, and particularly about the age of 16 or 17, the heart in boys is performing more work in comparison with its weight than at any preceding or subsequent period of life up to 40. He also noted that in schools where a strict discipline is maintained, the average systolic and pulse pressure of the boys are appreciably higher than in the more easy-going schools, the pulse-rate being reduced in compensation. To the healthy boy this is an advantage, but to delicate youths harm is likely to accrue from the keying up of the blood pressure.

Many other subjects of vital importance have been selected for investigation by individual members of the School Medical Service. Enough has been said to give an idea of the useful and progressive work which is being done.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 19TH, 1925.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 180 (previous weeks, 141, 115, and 105); scarlet fever, 1835; diphtheria, 978; enteric fever, 38; pneumonia, 1832 (previous weeks 1917, 1170, and 1531); puerperal fever, 51; cerebro-spinal fever, 8; acute poliomyelitis, 8; acute polio-encephalitis, 2; encephalitis lethargica, 44; continued fever, 1; dysentery, 8; ophthalmia neonatorum, 111. There were no cases of cholera, plague, or typhus notified during the week.

Of the 180 cases of small-pox, 118 were reported from the county of Durham as follows: Gateshead C.B., 8; Blaydon, 51; Chester-le-Street, 5; Consett, 1; Durham, 1; Jarrow, 1; Ryton, 3; Whickham, 1; Chester-le-Street R.D., 7; Easington R.D., 21; Houghton-le-Spring, 8; Lanchester, 4; Sunderland, 7; and 14 from the West Riding of Yorkshire—namely, Rotherham C.B., 1; Rawmarsh, 13.

*Deaths.*—In the aggregate of great towns, including London, there was 1 death only from enteric fever, none from small-pox, 78 from measles, 10 from scarlet fever, 48 from whooping-cough, 30 from diphtheria, and 132 (previous weeks 110, 100, 73, and 61) from influenza. In London itself there were 31 deaths from measles, 7 from diphtheria, and 26 from influenza.

# The Services.

## ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Sub-Lt. H. M. Willoughby to be Surg. Sub-Lt.

## ROYAL ARMY MEDICAL CORPS.

Lt.-Col. R. N. Hunt, half pay list, late R.A.M.C., retires on account of ill-health.

### ARMY RESERVE OF OFFICERS.

Lt.-Col. F. E. Bissell, having attained the age limit of liability to recall, ceases to belong to the Res. of Off.

## ROYAL AIR FORCE.

Flight Lt. G. Kinneir is transferred to the Reserve, Class D.2.

### RESERVE OF AIR FORCE OFFICERS.

P. A. Carrie is granted a commission in Class D.D. as a Flying Officer.

# Correspondence.

"Audi alteram partem."

## GLYCOSURIA AND LIFE ASSURANCE.

*To the Editor of* THE LANCET.

SIR,—May I be allowed a comment on Dr. Knyvett Gordon's letter in your issue of Dec. 19th last. The data in the letter are rather scanty, as neither the exact composition of the meal nor the time elapsing between it and the blood-sugar estimation is stated. Assuming, however, that the case really is one of a low renal threshold—i.e., one of glycosuria without hyperglycæmia — the proposer's remedy is simple: he should propose for a policy with another company. Although previous rejection would lead to a very careful scrutiny of all the facts by the second company it would by no means prevent his acceptance at ordinary rates if the circumstances satisfied the assessors that he was a normal risk. It happens quite frequently that a proposer is thus accepted by another company. Without going so far as Dr. Gordon in regarding a case of renal glycosuria as a " better risk in regard to carbohydrate metabolism than a normal man," I may say that I have recommended many such cases for acceptance if satisfactory in all other respects.

I am, Sir, yours faithfully,

OTTO MAY, M.D., &c.

Dec. 24th, 1925. President, Assurance Medical Society.

⁂ Dr. Knyvett Gordon's letter was published because it is well that instances which point towards arbitrary treatment in such matters should be ventilated. The case to which he alludes was recognised immediately by the company whose methods were criticised, and the following explanation has been sent to us :—

"When this proposer attended for examination he was examined by one of our own medical directors, and although Dr. Gordon says that he was 'a healthy man, of wiry physique, with clear family and personal history,' he was, in our examiner's opinion, not robust-looking—his weight was very light, he looked older than his age, and he was slightly emphysematous. Dr. Gordon says that the urine was 'boiled with a blue solution and the rest of the specimen poured down the sink'; whereas, when the urine was found to reduce Fehling's solution, the rest of the specimen was sent to one of the leading London laboratories and was tested both by Fehling's and Benedict's solution, and we also had a phenylhydrazin test made. The substance was shown to be glucose, and the quantity was 1·88 gr. per ounce. As a result of this we did not, as Dr. Gordon says, 'totally reject him,' but postponed the case for six months, and recommended the proposer to place himself in the hands of his medical adviser."

We need not enter into further details of the case, but it would seem that no careful insurance officer could have acted more justly in relation to other policyholders and with more consideration to the proposer himself.—ED. L.

## IMPETIGO CONTAGIOSA.

*To the Editor of* THE LANCET.

SIR,—In connexion with Dr. Haldin-Davis's admirable article on the treatment of impetigo contagiosa in your issue of Dec. 19th there are a few points concerning the ætiology, course, and prophylaxis of the disease which are not, as a rule, sufficiently emphasised.

In the first place, I am convinced that it is impossible to abort an attack by local measures alone, and that, once the eruption is well established, recovery is not so much due to the local treatment we employ, however carefully and thoroughly it may be applied, but to the gradual development of immunity to the infecting streptococcus and perhaps, to a less extent, to secondarily invading staphylococci. In other words, although by our local antiseptic applications we may check the spread of the eruption and hasten its disappearance, the patient cures himself by antibody production, and I believe that most cases, if left untreated, would run a definite course lasting from two to six weeks.

During the war I developed a very severe attack when on a hospital ship in the Persian Gulf during the hottest part of the year. I treated myself assiduously for some weeks with all the resources of the ship's dispensary, but entirely failed to check the outbreak of fresh lesions. Within 48 hours of landing in the relatively cool atmosphere of Bombay, however, new lesions ceased to appear and, apart from a few dried crusts, I was well at the end of a week. Rarely, too, one meets with cases in which the disease lasts not weeks but months, in spite of the most rigorous local treatment. One case I remember well—a little girl of some 3 years of age—in which the eruption, which was of the bullous type, had been present for over two years; a long-chained streptococcus was repeatedly recovered from the early lesions and the same organism was found in almost pure culture in the nasal and buccal mucous membranes, and in fæcal cultures it predominated over the *B. coli*. An autogenous vaccine produced febrile reactions but led to some improvement. It was decided to give a polyvalent antistreptococcal serum, but the mother removed the child from hospital and I lost sight of her. Another case was that of a young man with bullous impetigo of the face, neck, and hands in whom the disease lasted at least six months; he improved with an autogenous vaccine, and eventually the eruption cleared rapidly after two injections of antistreptococcal serum. He had had thorough local treatment at two other clinics before he came under my care.

Recently I treated a patient with severe impetigo of the face, neck, and scalp, in whom the disease ran a course of about four weeks, without, I think, being much influenced by local applications. At the end of his attack his wife came to me with three or four early lesions and she complained of feeling very seedy. I thought it worth while to try to abort the attack, and she was given a dose of a mixed vaccine of streptococci and staphylococci cultured from another case of impetigo. The result was dramatic, as on the following day the lesions had dried up, she felt infinitely better, and there was no further development.

Impetigo contagiosa is not always, as many textbooks would suggest, a trivial disease. In children and in adults of both sexes it may be the starting-point of obstinately recurring streptococcal fissures and intertrigo and of secondary staphylococcal lesions, such as boils; in men, of course, as Dr. Haldin-Davis points out, the risk of coccogenic sycosis becoming superimposed on a neglected impetigo is a very real one. The prognosis depends partly, no doubt, on the thoroughness with which the local treatment is carried out, but to a greater extent, in my opinion, on the rapidity and degree of antibody production. For this reason it is advisable to insist on the patient resting completely during the active stage, and he should, if possible, lie up out of doors; when the attack is subsiding, a fortnight's holiday in a cool, bracing place will complete the cure, and reduce the chances of secondary complications to a minimum.

Lastly, one meets with cases, most commonly in hospital clinics but also in private practice, in which there would appear to be a generalised streptococcal infection both of the skin and mucous membranes. The patients are usually children in the first decade. On the skin are found impetiginous lesions, fissures at the muco-cutaneous junctions, intertrigo of the natural folds, and perionychia. There is a diffuse catarrh of the mucous membranes, stomatitis, rhinitis, nasopharyngitis with adenoidal and tonsillar hypertrophy, bronchitis, and "mucous colitis." A large proportion of these children have thread-worms, and, as a result of scratching, streptococcal infection of the perianal and vulval regions takes place. The underlying condition corresponds to that described by the late Dr. Eustace Smith as "mucous disease." The chief causative factors are an excessive carbohydrate dietary and unhealthy surroundings. Local treatment alone is useless. The main indications are to keep the child as far as possible in fresh air and abundant sunlight (in winter artificial light baths are invaluable), to exclude soft starchy food and sweets rigidly from the diet, which should consist mainly of fresh meat, fish, eggs, green vegetables, fruit, milk, crisp toasted wholemeal bread-and-butter, and, for a while, to give rhubarb s a laxative and an alkaline bitter mixture before meals. Under this treatment the mucous membranes ry up, and the streptococcal infection of the skin radually disappears.

I am, Sir, yours faithfully,
H. W. BARBER.

Devonshire-place, W., Dec. 28th, 1925.

## INSULIN AND THE OPTICAL ACTIVITY OF URINE.

*To the Editor of* THE LANCET.

SIR,—Former observations have taught us that insulin causes transitory glycosuria in normally fed rabbits and in healthy people if its experimental application is suddenly stopped. This "paradoxical glycosuria" may become evident either at once or some time after the last application of insulin; it may persist for one or more days, and it may reach 1 per cent. and more. These experiments further have shown that it makes no difference if the insulin be injected or given by mouth. The insulin A.B. brand, insulin Tetewop, and insulin Fornet prove equally effective.

In the following experiments polarimetric examination of the urine showed the presence of optically active substances besides the glucose.

A rabbit of 2 3 kg., the urine of which had always been free from glucose and albumin, was injected with 0 units insulin A.B. brand. Six hours later the urine caused a deviation of the polarised light to the left of 2·5°. This polarisation to the left persisted for three days and varied from 0·05° to 0·4°. On the fourth day the polarimetric control of the urine showed a rotation of 0·3° to the right, after which the urine became normal again. Repeated experiments gave similar results.

A healthy man, 33 years, received on three successive days altogether 82 units insulin Tetewop in the form of pills made up with dried ox bile and powdered liquorice root. From the second day onwards the formerly absolutely normal urine began to influence the polarised light and caused a rotation that varied on the different days from 0·4° to the left to 0·6° to the right.

Another healthy individual also received insulin internally, with the difference, however, that the pills were not made up with Dutch insulin, but with insulin Fornet. Within four days 72 units were given, and the result was again that from the second day onwards the urine began to deviate the polarised light to the left (0·3°). On the fifth day the rotation reached 0 5° to the left and changed then on the seventh day into a rotation of 0·1° to the right.

These experiments and similar ones with identical results prove that the healthy and normal organism, on the experimental application of insulin, reacts by discharging in the urine an optically active substance that turns polarised light to the left. These observations suggested the idea that diabetic persons might react in the same way when treated with insulin.

Mrs. M. B., 56 years, 85 kg., middle case of diabetes; no glycosuria on a diet with no carbohydrates and 50 g. albumin. Twice a day injections, each of 20 units insulin A.B. brand; 50 g. of carbohydrate, and 75 g. albumin. From the second day onwards the urine turned polarised light to the left, varying from 0 5° to 1 5°. After reduction of the quantity of insulin to 10 units the urine became again optically inactive.

Mr. R. L., 33 years, 81 kg., slight case of diabetes, tolerance 40 g. carbohydrates. No glycosuria with three insulin pills Fornet, concentration III., three times a day; 100 g. carbohydrate, and 60 g. albumin. Towards the end of the first week the urine showed rotation of the polarised light to the left (1°). After reduction of the insulin doses to three pills concentration II. three times daily this symptom disappeared again.

These experiments and other similar ones show that not only the normal, but also the diabetic organism, when treated with an excess of insulin, discharges into the urine substances that turn the polarised light to the left. The origin and nature of these substances is to be discussed later. We want to draw attention to a hitherto unknown symptom that seems to indicate an overdosage of insulin and that might become useful for the routine control of diabetics under insulin treatment.

We are, Sir, yours faithfully,
F. W. FORNET,
E. CHRISTIENSEN.

Institute of Microbiology, Saarbruecken, Dec. 22nd, 1925.

## FATIGUE AND INFECTION.

*To the Editor of* THE LANCET.

SIR,—Perhaps you will allow me to make a few comments on your leading article of Dec. 19th in relation to its bearing on the problem of influenza. The work of the late Dr. Spaeth and his collaborators has always interested me since it was first announced in 1922, because I thought, and still think, that it may have some bearing on the explanation of the pains and aches associated with a typical attack of influenza.

In an article which appeared six years ago,[1] I drew attention to some rather curious phenomena associated with an attack of influenza. This was elaborated in my M.D. thesis of 1920, published later.[2] I make this little historical note because in your leading article of July 22nd, 1922, on the Ætiology of Influenza, you state in regard to the investigations of Prof. J. McIntosh:

> "A survey of all the facts at his disposal led the author of the report to the conclusion that the essential changes in influenza are due to the toxins of Pfeiffer's bacillus, which it produces whilst superficially placed in the respiratory passages, invasion of the tissues being no essential part of the disease."

In my article in the *Glasgow Medical Journal* I stated:

> "It is suggested that a possible explanation of the main distinction between these two states is that the 'primary' is the stage where infection is external to the tissues of the body, being confined to the respiratory and possibly alimentary tracts, with little or no toxic absorption, and that the 'secondary' stage is the stage of toxæmia, possibly accompanied by invasion either into the lung tissue or into the general tissues of the body of the micro-organism or micro-organisms associated with the condition."

In a kindly annotation in your columns[3] my views were described as unorthodox, but so far as the belief that invasion of tissue plays no integral part in the attack, it would appear that this view is also held by Prof. McIntosh; but there we part company, for he explained the illness as due to a toxæmia. My clinical observations forbade the acceptance of a similar view for, being interested in the interpretation of symptoms, at the close of the epidemic I considered all the recognised symptoms recorded during the epidemic in relation to the history of each case, and stated:

> "If the pains in the limbs and region of the back are caused through a toxæmia, either by producing symptoms of exhaustion or by the toxins producing irritation of the muscle sheaths, then I cannot understand why those pains should disappear with the onset of the 'secondary' stage. . . . Because those pains cannot at present be explained from a physiological standpoint, that should give no justification for more or less dismissing them as a proof of toxæmia." (This was written long before the publication of Prof. McIntosh's report, and is not a criticism of his view.)

In searching for an explanation of those symptoms I was impressed with the similarity of those aches and pains to those which occur in extreme physical labour, and I wondered if they could not be explained on the basis of some metabolic disturbance which was essentially protective in type, a disturbance most probably of the nature of a retention of a normal product of katabolism. The interest I felt in Dr. Spaeth's original communication will be appreciated. How far this new communication of Dr. Spaeth bears on those opinions I do not ask for space to discuss here, for at the present time the essential points are that fatigue under certain conditions appears to raise the bodily resistance to infection, and that in an attack of influenza there are symptoms simulating fatigue which appear to be of good prognostic significance.

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[1] Brit. Med. Jour., 1919, ii., 510.
[2] Glasgow Medical Journal, October, 1922.
[3] THE LANCET, 1922, ii., 1083.

This work may also throw new light on the infantile convulsion and the rigor of adult life. For many reasons it is to be hoped that the untimely end of Dr. Spaeth may not lead to an abandonment of investigations into the relationship of fatigue to infection. His work deserves all the prominence which has been given to it through your leading article. I am, Sir, yours faithfully,

Halifax, Dec. 23rd, 1925. A. GARVIE.

## PROFESSIONAL CRITICISM OF THE GENERAL MEDICAL COUNCIL.

*To the Editor of* THE LANCET.

SIR,—In your issue of Dec. 26th Dr. Gordon Ward writes apparently with approval of an action on the part of medical men which would seem to me most reprehensible. I refer to his statement in regard to the signing of a "certificate which requires the doctor to certify that he has seen all the children of so-and-so alive on this date." I have long taught senior students and junior practitioners working under me that members of our profession are far too careless of the way in which they fill in certificates of all sorts, and warn them against signing their names in blank to any document or putting their signatures to any statement without first reading it carefully. The right to sign certain documents—such as applications for passports or for payment of pensions—is one which we share with justices of the peace and with members of a limited number of other professions. It is a right of which we should be proud, and carelessness in using our right should be avoided. This is, however, the first time that I have ever heard of a medical man openly stating that he is in the habit of signing such certificates knowing that he is making a false statement. Certainly I should call such behaviour both "fraudulent" and "unethical" (these are his actual words).

I am writing this because the layman who reads your paper should not be allowed to think that such a standpoint will go unchallenged. At any committee with disciplinary powers I, for one, should view with disfavour anyone who had made such a false statement by carelessness, and be prepared to recommend a severe penalty on anyone who was proved knowingly and intentionally to have done the same. I am, Sir, yours faithfully,

Welbeck-street, W., Dec. 26th, 1925. T. B. LAYTON.

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*To the Editor of* THE LANCET.

SIR,—Will you allow me a word of friendly criticism of the leading article in your issue of Dec. 19th? In the course of that article you state that it is a British tradition that every trade and every profession is to manage its own affairs. Supposing I were a member of the black squad and, being democratic, I insisted on working for the wage offered by the employers, and that the other members of the trade-union did not agree to my doing so and forthwith proceeded to maul me. Am I not to be allowed to apply to the ordinary judicature of the country for reparation; is my case only to be considered by the trade-union? I do not agree to any such attitude whatsoever.

Now the General Medical Council as presently stablished is a law unto itself; in fact, if I read matters aright, it is superior even to the law of the land. It has a power which has not been held by any tribunal so far as I know since the Court of High Commission in the reign of James II. of England, that Court which directed the Bloody Assize in the West country. In some cases it appears to be very slack in its proceedings, in others unnecessarily severe. Many years ago a contribution which I made on the subject of seamen's eyesight, and which, with my consent, was published in the *Liverpool Journal of Commerce*, might even now get me into trouble. The General Medical Council may take it into its head even yet that such a contribution should not have been made to a lay journal. It was, however, an important contribution and stopped the adoption of certain regulations which would have put a very large number of competent men out of employment. Even at this moment I am anxious to make a communication on miners' nystagmus to an audience which would be composed chiefly of coal-pit managers and of the officials of the various unions. If the General Medical Council took it into its head it might say that that is an infamous thing to do. Naturally I believe that my communication will be of some value in helping to solve an extremely intricate economic problem. The General Medical Council is absolutely unconditioned; it may do what it likes, and nobody has any right to interfere with it. If THE LANCET thinks that that is a healthy state of matters I do not. I cannot go on with the publication meantime because one never knows what the General Medical Council will do.

It is all very well to say that a name can be reponed. So it can be, but meantime it has been struck off and the person involved has no doubt lost any appointments he may have held under the Crown, such as an appointment of certifying surgeon. He will likely also have lost any hospital appointment he may hold. As a rule, hospital appointments can only be held by persons who are on the Medical Register. When his name is reponed by the General Medical Council, will he also get back any medical appointments which he may have lost? Will they not meantime have been filled up so that it is impossible for him to regain his appointments? Unquestionably there should be an appeal to a competent legal tribunal before anyone is involved in perhaps financial ruin by amateur lawyers.

I have no wish whatever to disparage the General Medical Council. I think to some extent its constitution should be changed. But, given a right proportion of men who are of eminence in modern surgery and modern medicine, it is the proper body to determine the medical curriculum. To my mind it has recently made a mess of the curriculum. That, however, is a matter on which opinions may legitimately differ. But, given a sound working Council, whose members are for the most part in the prime of life and actively engaged in the higher parts of medical work, then it would be an admirable body for arranging the curriculum. The refusal to have an investigation rather conveys to my mind the idea that the cause of the General Medical Council is not a particularly strong one. Were it otherwise the Council would welcome a proper investigation.

My fear is that the discontent with the present organisation and powers of that body will cause its whole functions to be taken over by the Ministry of Health, and that is an event which I do not wish to occur. I think it can only be prevented by the General Medical Council insisting on an investigation and thereafter setting its house in order.

I am, Sir, yours faithfully,

Glasgow, Dec. 24th, 1925. FREELAND FERGUS.

*** The passage in our leading article, on which Dr. Fergus bases his argument, is not quoted quite correctly. The sentence ran: "Nor let it be forgotten that it is the British tradition to rely upon each trade or calling or service to maintain its own standards."—ED. L.

## PROFESSIONAL SECRECY.

*To the Editor of* THE LANCET.

SIR,—Recently I was asked to see a man-servant by his employer for some trifling ailment, and in due course the man was placed on my insurance list and the medical record card sent to me. From this I learnt that, a couple of years ago, the man was certified as insane and removed to an asylum. On the principle of "doing unto others as ye would that they should do unto you," I thought that the employer should be made aware of this fact, but before telling him I took the advice of an eminent medico-legal expert, whose opinion was quite definite that it would be highly improper of me to divulge these facts to the employer.

The position of a general practitioner in such a case seems to me to be very doubtful; for, apart from professional rules, it seems clear that the head of a household is entitled to be informed of any facts relating to the inmates' health which may lead to undesirable consequences as, for example, in the case of infectious diseases or lunacy. I should be glad to learn whether the profession generally adopts the view of my medico-legal expert. I may add that this confidential medical record card passed through two health insurance offices without a cover.

I am, Sir, yours faithfully,
X. Y. Z.

Dec. 27th, 1925

# Obituary.

## JAMES RITCHIE, M.D., F.R.C.P. & S. EDIN.

BY the death of Dr James Ritchie on Dec. 10th, in his eighty-fifth year, Edinburgh has lost one of the oldest and most respected members of the medical profession. Born in 1841, son of Andrew Ritchie, of Edinburgh, he was educated at the Royal High School and went on to study medicine at the Extra Mural School. He graduated M.B., C.M. Edin. with honours in 1872 and in the same year took the M.R.C.S. Eng. Two years later he became a Fellow of the Royal College of Surgeons of Edinburgh, and in due course a Member and Fellow of the Royal College of Physicians. Finally in 1891 he took the M.D. Edin. with a gold medal. This brilliant academic career was the forerunner of a very extensive practice in the town carried on up to recent years, when his retirement was deeply felt by many as the loss of a trusted friend and adviser. He held many appointments, chief among them the principal medical officership to the Scottish Metropolitan Assurance Company. At different times he was president of the Medico-Chirurgical and of the Obstetrical Societies of Edinburgh, and he was for many years examiner in midwifery to the R.C.S. Edin. His writings, which are to be found in the transactions of those societies, cover a large field of clinical observation. Dr. Ritchie was keenly interested in the affairs of the United Free Church of Scotland and held office for 62 years in posts filled by his father and grandfather before him. All his life he was a student of Nature and the leisure moments of a busy professional life were spent in gardening and sketching.

Dr. Ritchie married Jessie, daughter of Sir Thomas Clark, and is survived by two sons, both in the medical profession, and by four daughters.

## HENRY DUNN WAUGH, M.D., B.Sc. LOND.

Dr. H. D. Waugh, who died in London on Christmas Day after a short illness, was born at Bathgate in Scotland, and entered the Normal School, Wigtown, in 1861. After spending six years there he came to London and received further education at King's College School and University College, at which he graduated both in Arts and Science. In 1882 he qualified from University College Hospital as M.R.C.S. Eng. and held an appointment at the Victoria Hospital for Children. Later in the same year he went to Brompton Hospital for Consumption, where he was successively house physician and resident medical officer. This latter post he held more than five years, in the course of which time the junior residents in the hospital who had been under his authority passed to positions on the staff, remaining his friends in the latter capacity, as they had been in the former. Many patients also in the recurring conditions which marked a good many of the cases returned to the hospital more than once, to find Waugh still in authority and making an ever kindly link between the past and present. There is no doubt that his long tenure of this important post enabled him to form and cement many abiding friendships. It was not until 1889 that he left the hospital, after taking his M.D. degree at London University, and entered general practice in the West End of London. Amongst his recreations was climbing, and he was a member of the Alpine Club.

## JOHN GOUGH NOLAN, M.B., CH.B. MANCH.

Dr. Nolan, deputy police surgeon for Wigan, died suddenly at his residence in Wigan from a heart affection on Dec. 15th. A native of Southport, he received his early education at St. Edward's College, Liverpool. He studied at the University of Manchester and Dublin, qualifying M.R.C.S., L.R.C.P. Lond. in 1919, and in the same year graduated M.B., Ch.B. (with distinction in surgery) at the University of Manchester. He obtained the Dunville Surgical Scholarship, and before going to Wigan he was senior house physician and surgeon in the Royal Infirmary, Manchester, resident medical officer at the Northern Hospital for Women and Children, Manchester, and assistant medical officer at Barnes Convalescent Hospital, Cheadle, Cheshire. He was assistant honorary surgeon to the Wigan Rugby F.C. Dr. Nolan was in his thirty-second year and unmarried. At the inquest the coroner paid a high tribute to the work—public and private—which he had accomplished in Wigan before his life was prematurely cut short.

## JOHN JAGGER PICKLES, M.R.C.S. ENG.

Dr. J. J. Pickles, sen., who died at his son's house at Leyburn on Dec. 21st, was born at Shelf, near Halifax, in 1851. He was educated at Hipperholme Grammar School and at Leeds Medical School, where he was gold medallist for his year. Qualifying as M.R.C.S. Eng. in 1873 and L.R.C.P. Edin. in 1874, he held resident appointments at the Leeds General Infirmary and at Bradford Infirmary. He became a general practitioner in the Camp Road district of Leeds, and remained at work there for 50 years. As a medical man he was a general favourite, and his relations with his professional brethren were unusually cordial. He was honorary surgeon to the Leeds Tradesmen Benevolent Society, and as an enthusiastic steward of the Medical Charitable Society for the West Riding of Yorkshire was always ready where to urge its claims on those who were eligible for election. His loyalty to the Leeds School of Medicine was shown by the fact that the five of his six sons who became doctors obtained their qualifications there. All his sons served in the war, and four survived. His wife died eight years ago. Dr. Pickles will be long remembered in medical circles in Leeds as a genial and straightforward colleague.

## JOHN FRANCIS McCLEAN, M.R.C.S. ENG.

Dr. J. F. McClean, senior resident medical off of the London Fever Hospital, died at St. Thom Hospital from septicaemia following an injury to hand. He was educated at St. Thomas's Hosp and held the appointments of house surg [illegible] obstetric house physician there after [illegible] M.R.C.S. Eng., L.R.C.P. Lond. in 1897 [illegible] [illegible] of the British [illegible] [illegible] and for many years [illegible] in the British Hospital in Constan [illegible] [illegible] by the Turk

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

### *The Christmas Recess.*

PARLIAMENT was prorogued by Royal Commission in the House of Lords on Tuesday, Dec. 22nd, 1925. It will reassemble for the new session on Feb. 2nd next.

## HOUSE OF COMMONS.

### MONDAY, DEC. 21ST.

### *Illicit Cocaine Traffic in Bombay.*

Colonel DAY asked the Under-Secretary of State for India whether there had been any prosecutions in Bombay for the three months ending Nov. 30th for the illicit sale of cocaine; and, if so, would he state the names of the defendants and the punishment inflicted on them if they were convicted.—Earl WINTERTON replied: Current reports of such cases are not officially received except of those arising from Customs seizures at the ports which are required for communication to the Secretariat of the League of Nations. Four cases under this head have occurred since August 31st, 1925, and led to convictions. I have seen reports in the press of the recent case in which three men appear to have been convicted and sentenced respectively to nine months' rigorous imprisonment and a fine of Rs.1000, to four months' rigorous imprisonment and a fine of Rs.500 or a further three months' imprisonment, and to three months' rigorous imprisonment and a fine of Rs.500 or three months' further imprisonment. The following is a statement regarding prosecutions arising from seizures of cocaine by the Customs authorities at Bombay, giving initials of accused, date of arrest, and sentence:—

T. O., August 31st, 1925, nine months' rigorous imprisonment.

R. M., Sept. 7th, 1925, fine of Rs.250, or three months' imprisonment (the fine was paid).

K. T., Sept. 16th, 1925, six months' rigorous imprisonment.

F. M., Sept. 28th, 1925, nine months' rigorous imprisonment, and fine of Rs.1000, or three months' rigorous imprisonment (the fine was paid).

### *Medical Services in East Africa.*

Sir SYDNEY HENN asked the Secretary of State for the Colonies what steps were being taken to strengthen the medical services throughout East Africa; and what was the attitude towards recruitment in this country for such services adopted by medical schools and societies.—Mr. AMERY replied: It is not possible to give definite figures pending consideration of the estimates of the various Dependencies for the coming financial year, but I anticipate a considerable further extension of medical work in Eastern Africa in the near future, especially in Kenya, Uganda, and the Tanganyika Territory. It is hoped to increase the personnel of the East African Medical Service by some 20 or 30 officers during the next year. The attitude towards recruitment adopted by the medical schools and societies has been very helpful in the past, and I hope to secure their coöperation in filling up the many new appointments which are about to be created.

### *Native Infant Mortality in Tanganyika.*

Sir SYDNEY HENN asked the Secretary of State for the Colonies whether his attention had been called to the rate of native infant mortality disclosed at the recent education conference at Dar-es-Salaam; and what steps were being taken, or would be taken, to deal with the matter.—Mr. AMERY replied: I am aware of the high rate of infant mortality in Tanganyika Territory. Active measures are being taken to improve medical and sanitary conditions. The number of medical officers has been increased by 12 this year and numerous native assistants, including sanitary inspectors and nurses, are being trained.

### *Poor-law Reform.*

Mr. BRIANT asked the Prime Minister if, in view of the divergence of opinion on the proposals for Poor-law reform outlined by the Minister of Health and the opposition which had been evoked, notwithstanding the general desire for an alteration in the methods of relief of distress, he would consider the desirability of appointing a committee of Members of the House, representing all parties, in order to ascertain if it was possible to arrive at an agreed measure on the subject.—Mr. BALDWIN replied: My right hon. friend has adopted the plan of publishing his provisional proposals with the express object of obtaining suggestions from those experienced in local government and Poor-law administration, which will lead to a scheme commanding as large a measure of agreement as is possible in a matter of this kind. I do not think that such a committee as th hon. Member proposes is desirable at the present time.

### *Lunacy and Mental Disorder.*

Mr. AMMON asked the Prime Minister what action h proposed to take with regard to the memorial sent to hi in May last, signed by 90 Members of Parliament, wit reference to the Royal Commission on Lunacy and Menta Disorder now sitting.—Mr. BALDWIN replied: On May 30th I wrote to my hon. friend the Member for Exeter (Sir R Newman), who had forwarded this memorial to me, an informed him that the Royal Commission have a complete discretion regarding the procedure they adopt in the con duct of their inquiry, and that I am not, therefore, in a position to give any directions in the matter. At the same time, I informed my hon. friend of some of the considerations which had weighed with the Royal Commission in determining their procedure, and which appeared to me fully to justify the course which they have adopted in their inquiry.

### *Epileptic Patients at Maghull.*

Mr. HAYES asked the Minister of Pensions whether any curative treatment other than four and a half hours' work daily was provided for the epileptic patients at the Ministry of Pensions Hospital, Maghull; whether he was aware that the patients were allowed group leave from 12.45 until 3.15 P.M.; that the midday meal was given before leave was taken; and that men taking leave in groups of three or more, in the event of one of the patients having a fit, the others must leave him or run the risk of being punished for being out over the leave hours; and whether, in the cases where men were fined 3*s.* to 6*s.* for being out after leave had expired, the deductions were stopped from the allowance paid to the wives.—Major TRYON replied: The treatment for epilepsy at this institution includes all the known curative and ameliorative methods. The four hours' leave granted is the maximum under the regulations which apply to all Ministry hospitals. It rests with the medical superintendent to determine at what time leave shall be taken in suitable cases. Where leave was overstayed in the circumstances referred to the medical superintendent would not regard the matter as one of misconduct. With regard to the last part of the question, any fine imposed for misconduct is, under the rules of the Ministry, payable from the personal allowance due to the man only, and not from any allowances payable to his wife and family.

### *Dental Benefit for Insured Persons.*

Mr. WARNE asked the Minister of Health whether the Ministry recognised the specifications issued to approved societies by the Public Dental Service Association as suitable to enable a standard denture to be supplied to insured persons; in view of the varying kinds, qualities, and prices of materials to be used in the making of dentures, had the Ministry of Health introduced any scheme for ensuring dental treatment and dentures of a standard price and quality as in the case of medical benefit—e.g., chemicals, materials, and appliances supplied by the doctors, chemists, and druggists; and had the Ministry defined by statute, under Section 75 (5) of the National Health Insurance Act, 1924, dental treatment as being in the nature of medical benefit.—Mr. N. CHAMBERLAIN replied: The specifications in question which represent the results and negotiations between representatives of the dental profession and of certain approved societies do not require, and have not received, any recognition from my Department. As regards the second part of the question, I have no power under the existing Acts to make regulations on the lines suggested by the hon. Member. As regards the last part, I am advised that having regard to the terms in which this benefit is defined in the Acts, it is not a benefit in the nature of medical benefit for the purposes of Section 75 (5).

### *Medical Branches of the Services.*

Major-General Sir FREDERICK SYKES asked the Prime Minister whether he would set up a committee to consider the present possibilities of reorganising the three medical services in the fighting forces into a unified service.—Mr. BALDWIN replied: The question of the amalgamation of the medical branches of the three fighting services was carefully considered by His Majesty's Government some two or three years ago, when it was decided that this step was undesirable. A Standing Joint Committee on which the Ministry of Pensions Medical Department is also represented has been set up to discuss matters affecting the medical services of the four departments. The question of the pay of officers of the medical branches of the three fighting services, and all matters ancillary thereto, is at present being considered by a committee set up for the purpose as indicated in the reply given on Nov. 10th.

### *Cost of Military Hospitals.*

Major-General Sir FREDERICK SYKES asked the Secretary of State for War if he would state in respect of hospitals under his administration in this country and elsewhere, respectively, the estimated capital value of lands and of buildings occupied; the annual building maintenance cost, the annual cost of medical stores, the annual cost of provisioning; the annual cost of, and the numbers of staff employed on, medical services; the annual cost of, and the numbers of staff employed on, services other than medical and building maintenance; the annual cost of any additional staff or services; the maximum patient accommodation; and the maximum and average number of patients in residence in any one day in the last 12 months.—Sir L. Worthington-Evans replied: So far as they are available the figures are as follows:—

| | Home. | Abroad. |
|---|---|---|
| Estimated— | | |
| Capital value of lands and buildings | £1,000,000* | £500,000* |
| Annual building maintenance cost | £25,000 | £17,500 |
| Annual cost of medical stores | £21,000 | £11,000 |
| Annual cost of provisioning patients | £63,000 | £38,000 |
| Annual cost of staff | £375,000 † | £198,000 † |
| Numbers, ditto | 1,800 | 950 |
| Average daily number of equipped beds during year ended Nov. 30th, 1925 | 4,340 | 2,118 |
| Maximum number of beds occupied during same period on any one day | 3,717 | 1,877 |
| Average, ditto | 2,304 | 1,130 |

* These are very rough estimates and are given with reserve.

† The numbers and cost of those engaged on (*a*) medical and (*b*) other services, cannot be given separately. Personnel engaged on building maintenance are not included.

The hon. and gallant Member may like to refer to the very full information on pages 60 and 61 of the Army Accounts for 1923–1924.

### *Cost of Air Force Hospitals.*

Major-General Sir Frederick Sykes asked a similar question with regard to Air Force hospitals.—Sir S. Hoare replied: The following statement gives the information requested by my hon. and gallant friend:—

| | Home. | Abroad. |
|---|---|---|
| 1. Capital cost of lands and buildings | £102,455 | £700,000 |
| 2. Annual building maintenance cost | £2,000 | £10,000 |
| 3. Annual cost of medical stores | £7,000 | £9,000 |
| 4. Annual cost of provisions | £7,770 | £21,000 |
| 5. Annual cost of staff employed on medical services | £19,000 | £98,000 |
| Numbers of such staff | 239 | 337 |
| 6. Annual cost of staff employed on other than medical and building maintenance | £3,000 | £14,000 |
| 7. Numbers of such staff | 17 | 309 |
| 8. Annual cost of any additional staff or services | £6,000 | £25,000 |
| 9. Maximum patient accommodation | 447 | 900 |
| 10. Maximum number of patients in residence on any one day in last 12 months | 437 | 544 |
| 11. Average number of patients in residence during last 12 months | 109 | 329 |

As regards (1) above, £650,000 of the figure in the second column represents the capital cost of hospitals in Iraq, which were largely built under Army administration before the reduction of the garrison to its present size. A reassessment of the present value has not been undertaken. As regards (8) above, the figures of £6,000 and £25,000 represent cost of water, heating, lighting, and conservancy services. As regards (9), the 900 beds abroad do not include a possible expansion of 239 beds at Basrah Hospitals (British and Indian). The hospitals at Hinaidi are also capable of a very large expansion within the existing buildings. As regards (9), (10) and (11), the hospitals in Iraq cater for the whole of the garrisons—i.e., British and Indian Army troops—in addition to R.A.F. personnel; the same is the case in Palestine, where the hospitals also provide for the British Gendarmerie. Further, it should be borne in mind that the garrisons in Iraq and Palestine have been largely reduced in the past few years and are still in process of reduction.

### *Sealing of Milk Churns.*

Mr. Herbert Williams asked the Minister of Health whether he had received application from any local authority for power to order the sealing of milk churns containing milk in transit from producer to retailer; and, if so, what action was being taken by the department.—Sir Kingsley Wood replied: My right hon. friend has received a number of communications suggesting that a Milk and Dairies Order should be made requiring the sealing of milk churns, and he is in consultation with the Minister of Agriculture and Fisheries in the matter.

### *Naval Medical Boards.*

Mr. Thomas Williams asked the First Lord of the Admiralty if he was aware that recently there were ten or more ex-naval officers and men inmates of the Meathop Sanatorium, some of them with 20 years' service; that a medical board took place which consisted of an examination by one doctor, and that the findings in each case were that the disability was constitutionally not caused by nor aggravated by service; and, in view of the loose term and the dissatisfaction among these ex-officers and men, would he cause inquiries to be made into some of these cases and remove any doubts that might exist.—Mr. Davidson (Parliamentary Secretary to the Admiralty) replied: Naval cases of tuberculosis are invalided by Board of Survey at naval hospitals. In a very few instances, however, where the patient has already entered a sanatorium prior to coming under naval observation, it may be necessary to hold a survey with a view to invaliding without causing the patient to be moved. This survey may be carried out by the Admiralty surgeon and agent of the district in conjunction with the sanatorium authorities. The report of such survey would be examined by the Naval Medical Department at the Admiralty before action is taken, in a similar manner to that adopted for other naval medical surveys. I have no information as to the cases of tuberculosis in Meathop Sanatorium to which the hon. Member refers, but if the names of any special cases he may have in mind are furnished to me I will cause inquiry to be made.

## TUESDAY, DEC. 22ND.

### *Notification of Diphtheria and Scarlet Fever.*

Mr. Bromfield asked the Minister of Health whether he was aware that 31·5 per cent. of the cases notified as diphtheria, and 13·0 per cent of the cases notified as scarlet fever, and sent to the infectious diseases hospitals of the Metropolitan Asylums Board in the year 1924, were found after admission to be suffering from something else or from no disease at all; whether there was any reason to believe that these percentages were as great or greater throughout the country; whether any steps were taken to correct the statistics of notification for these errors; whether the parents of the children were informed as to the mistaken diagnoses; whether there was any information available as to how many, if any, of these cases contracted diphtheria or scarlet fever after admission to hospital; whether the practitioners who made these errors were called upon to refund the notification fees received by them; and, if not, would he consider the desirability of arranging for that course to be adopted.—Mr. N. Chamberlain replied: The answer to the first part of the question is in the affirmative, but I may say that I am informed that the increase in the number of cases of diphtheria admitted during 1924 to the infectious diseases hospitals of the Metropolitan Asylums Board in which the diagnosis had to be revised may be accounted for by the increasing recognition on the part of medical practitioners of the necessity, in the interests of the patient, of immediate removal to hospital for the purpose of receiving treatment as early as possible without waiting for the receipt of a laboratory report. As regards the second part of the question, no figures are available for the country as a whole which would enable any definite conclusion to be arrived at. As regards the third part, I am informed that in cases in which the diagnosis made at the Metropolitan Asylums Board's hospitals is not in agreement with that of the notifying practitioner, the information is communicated to the medical officer of health of the sanitary district from which the patient was removed in order to ensure the accuracy of his statistics. As regards the fourth part, I understand that information as to the diagnosis made at the hospital is given to the parents on request. As regards the fifth part, I am informed that there is no information available as to the number, if any, of these cases which contract scarlet fever or diphtheria after admission to hospital. As regards the last part of the question, I am advised that there is no statutory provision under which a medical practitioner could be called upon to refund the fee for a notification certificate in a case in which his diagnosis is not in agreement with that subsequently made at the hospital, and in view of what I have said in replying to the first part of the question, it would, in my opinion, be undesirable in the public interest that such a course should be adopted.

### *Deaths from Encephalitis Lethargica.*

Captain Fairfax asked the Minister of Health, in view of the figures given by his department, which show 330 deaths from encephalitis lethargica in 1922, 531 in 1923, and 1107 in 1924, what the figures were for 1925 up to date; and whether any measures had been taken, or were in contemplation, to prevent the increase of this fatal complaint.—Sir K. Wood (Parliamentary Secretary to the Ministry of Health) replied: 1157 deaths have been provisionally attributed to this disease in England and Wales during 1925, up to the end of October. As regards the second part of the question, my right hon. friend's department has issued several reports and memoranda in recent years in which the principal facts ascertained regarding the occurrence of this disease and the manner of its spread have been set out. Efforts are being made in conjunction with the Medical Research Council to add to our knowledge of the causes of this disease and the possibilities of avoiding it.

# Medical News.

University of Oxford.—The Board of Faculty of Medicine has coöpted E. Farquhar Buzzard, D.M., Magdalen College, and Malcolm H. MacKeith, D.M., Fellow of Magdalen College, as members of the Board for two years. The Francis Gotch Memorial Prize in Physiology for 1925 has been awarded to Joyce Wright, B.A., Somerville College. Proxime accessit: Jack Wynne Pugh, B.A., University College.

University of Cambridge.—At recent examinations the following candidates were successful:—

Third Examination for Medical and Surgical Degrees.

*Part I., Surgery, Midwifery, and Gynæcology.*—A. R. Adderley, D. Aserman, G. W. Bamber, J. O. W. Bland, G. C. W. Brown, J. A. S. Brown, P. R. Buckton, G. P. Chandler, P. F. Chandler, H. A. Clegg, L. C. Cook, W. F. Cooper, R. Cunningham, T. S. Dewey, H. V. Dicks, J. Dockray, C. E. Donaldson, A. B. Eddowes, J. B. Ellison, A. W. Ewing, T. D. W. Fryer, S. J. P. Gray, J. C. P. Grey, W. S. Grove, H. J. Heathcote, J. D. Hindley-Smith, G. G. Holmes, J. H. Humphris, I. A. Jackson, D. McI. Johnson, S. Levy Simpson, A. V. Mackenzie, Hon. W. S. Maclay, R. D. Milford, H. L. Milles, W. J. Moody, R. T. Mummery, H. P. Nelson, H. E. Nourse, F. B. Parsons, W. R. H. Pooler, J. D. Procter, L. A. Richardson, R. Riley, J. B. W. Roberton, M. E. D. Roberts, F. C. Roles, G. L. F. Rowell, H. Scudamore, C. J. L. Sharp, G. Simon, R. E. Smith, A. W. Spence, G. M. Tanner, B. C. Tate, G. K. Taylor, H. B. Trumper, J. G. Wigley, H. L. Wilson, R. M. Windeyer, F. G. Winterton, A. T. Worthington, and H. R. Youngman.

*Part II., Physic, Pathology, and Pharmacology.*—D. Aserman, G. W. Bamber, W. A. Barnes, I. C. P. Beauchamp, J. A. S. Brown, Hon. C. B. Buckley, N. F. C. Burgess, R. T. Chadwick, H. A. Clegg, A. C. Copley, R. W. Cuningham, G. H. Day, G. W. S. de Jersey, J. H. Gibbens, N. T. Glynn, R. F. Guymer, C. C. Halliwell, J. C. Hogg, A. T. Howell, W. S. Hunt, J. W. W. Jepps, D. F. Lawson, G. A. Q. Lennane, L. J. Panting, W. R. H. Pooler, R. L. Rhodes, F. R. Sandford, E. M. Shackel, A. Simpson-Smith, H. B. Stallard, E. J. E. Topham, E. A. Trim, J. L. Warner, and H. M. Woodman.

University of London.—At the recent examination for the degree of Master of Surgery John Basil Hume, of St. Bartholomew's Hospital, was approved by the examiners.

University of Durham.—At the Convocation held on Dec. 19th the following degrees and diplomas were conferred:—

Master of Surgery.

James Whillis and Angus H. Whyte.

Bachelor of Medicine and Bachelor of Surgery.

Norman Davison, James W. Dickinson, Basil A. Dormer, Alan Gray, Louis Lavine, Richard A. Pallister, Ernest P. Pratt, Winifred M. Proctor, William S. Walton, and James Y. Woodhouse.

Bachelor of Hygiene.

Ian M. McLachlan.

Diploma in Public Health.

Ian M. McLachlan.

University of Liverpool.—At examinations held recently the following candidates were successful:—

Degree of M.D.

F. S. Fowweather, W. D. Jeans, R. J. Minnitt, M. Newman, and C. Voigt.

Degrees of M.B. and Ch.B. (Honours).

*Class I.*—C. A. Birch (distinction in Medicine and Obstetrics).

Final Examination for Degrees of M.B., Ch.B.

*Part III.*—A. Ashworth, Ethel Barrow, C. Baxter, E. I. Bieber, P. V. Dillon, F. R. Faux, J. H. Gilchrist, R. I. Greenshields, J. Hatton, Enid M. Hughes, T. S. L. Jones, Rebecca Katz, B. Kay (distinction in Obstetrics), Alice M. Luck, D. D. O. McLoughlin, Lilian W. Massey, J. Morrissey, E. R. S. Owen, W. J. Pierce, Thirza Rodman, D. Roberts, F. B. Shevlin, P. Strelitz, J. Tarshish, J. E. C. Walker, and W. L. Webb.

*Part I.*—A. B. Anderson, J. H. Boultbee, W. S. Brindle (with distinction), A. N. Cameron, J. K. Cameron, E. Cohen, W. S. Creer, A. Dodd, W. J. Eastwood, K. Edmundson, Elsie A. Griffiths, I. Gurland, E. D. Irvine, R. N. Johnson, O. V. Jones, Theresa J. Lee, J. L. Lewis, F. E. Lomas, J. McHugh, S. G. Massey-Lynch, J. W. Pickup, A. D. Polonsky, C. Rigby, N. W. Riley, G. L. Roberts, Alfreda H. Slater, V. J. M. Taylor, J. P. Thomas, S. L. Tunnicliffe, D. P. de Villiers, E. N. Wardle (with distinction), P. H. Whitaker, and R. L. Wynne.

*Part II.*—Grace A. Austin, W. A. Davies, J. Halton, W. E. Hargreaves, S. P. Meadows (distinction in Forensic Medicine), J. Morgan, J. N. Parrington, E. S. Smith, and Joan Watkins.

Second Examination for Degrees of M.B., Ch.B.

*Part A.*—S. Alstead, E. T. Bates, *R. K. Bowes, S. Canter, J. H. St. B. Crosby, *T. B. Davie, Ariel R. S. Deacon, †T. L. Dowell, R. Doyle, H. R. Dugdale, J. H. Follows, R. A. Furniss, Agnes G. Gillespie, R. G. Gornall, J. J. Graham, G. T. Harris, E. W. Jones, Mary G. Jones, W. E. J. Jones, †T. Lasker, N. R. Lawrie, J. M. Leggate, H. Leiper, C. T. Mercer, Doris Morrison, H. Paterson, Elizabeth R. Robson, E. L. Rubin, †M. Silverstone, H. W. Smith, G. A. Talwrn-Jones, G. G. Warburton, and F. J. Welton.

* Distinction in Anatomy and Physiology. † Distinction in Physiology.

*Part B.*—S. W. Adler, Gladys A. Coventry, A. Dala, R. E. Jackson, K. Jilani, I. Kossow, T. C. Newman, G. W. Phillips, E. E. Prebble, and A. L. Williams.

Diploma in Tropical Medicine.

A. R. D. Adams, F. R. Ashton, Esther Ashworth, C. W. Bamford, J. Belnashowitz, G. Clark, B. A. Coghlan, Ivy Collier, P. G. Cumming, M. Fisher, M. S. Grutu, A. J. Hawe, Z. H. Jafri, Elvy I. Johnstone, J. R. Kerr, D. M. Mackay, M. M. el Makkawi, L. G. Maldonado, S. F. Mar, B. P. Mozoomdar, D. A. Skan, E. R. Stone, C. G. Terrell, and F. Tooth.

Recommended for Milne medals: Dr. Adams and Dr. Hawe.

University of Birmingham.—At a Congregation held recently the following degrees were conferred:—

*Doctor of Medicine.*—Mabel Thorburn Johnstone, Horace Simkin Savage.

*Bachelor of Medicine and Bachelor of Surgery.*—Dennis Murray Bladon, Zaki Ahmed Goma, Constance Rougier La Trobe, Margaret Elizabeth Lovett, Dorothy May Payton.

University of Dublin, Trinity College.—It is proposed to celebrate the centenary of the new medical school early in January. The building of the new school was begun in 1823 and it was formally opened on Nov. 1st, 1825, by Prof. James Macartney, university professor of anatomy and chirurgery. On Wednesday, Jan. 13th, Dr. T. P. C. Kirkpatrick will deliver an address on the Early History of the School of Physic at a meeting to be held in the school, at which the Provost will preside. All medical graduates of the University are invited to be present. On the same evening a dinner will be held in the dining hall of the College at 7.15 P.M., for which medical graduates may obtain tickets at £1 1s. each. Academic dress will be worn. Accommodation is limited and applications for dinner tickets should be made as early as possible to the Dean of the Faculty of Physic, Trinity College, Dublin.

Territorial Army Medical Officers Association.—A dinner for Territorial medical officers, active and retired, will take place at the Café Royal, 68, Regent-street, London, W., on Friday, Feb. 12th, at 8 P.M. Officers proposing to attend are requested to communicate without delay with Colonel M. B. Ray, D.S.O., M.D., at 37, Russell-square, London, W.C.1. Lieut.-General Sir Hugh Jeudwine and Lieut.-General Sir William Leishman have intimated their intention to be present.

Lecturers to Midwives.—Post-certificate lectures arranged by the London County Council for 1926 are to be given in Northern London by Mr. T. W. Letchworth, Dr. Eric Pritchard, Dr. Janet Lane-Claypon, Mr. Alfred Richardson, Dr. T. Anwyl-Davies, Mr. J. M. Wyatt, and Dr. G. F. Stebbing, and in Southern London by Dr. W. Brander, Mr. Trevor Davies, Mr. Leonard Phillips, Mr. Leslie Williams, Mr. M. S. Mayou, Dr. Remington Hobbs, and Dr. Archibald Gray.

Royal Institute of Public Health.—The Council have awarded the Harben Gold Medal for 1925 (triennial), of the value of 50 guineas, to Prof. Baron Shibasaburo Kitasato, M.D., Director of the Royal Japanese Institute for Infectious Diseases, for his "eminent services to the public health." The Council have also made the Smith Award to Prof. Matthew Hay, M.D., LL.D., F.R.C.P. Irel., for his "outstanding merit as a medical officer of health." The Smith Award takes the form of a bronze statuette of Hygeia by Charles L. Hartwell, R.A., which was exhibited at the Royal Academy in 1910.

British Institute of Philosophical Studies.—A course of nine lectures on Life and Mind will be given by Prof. James Johnstone on Mondays at 5.30 P.M. at the Bedford College for Women, Regent's Park, N.W. The course will begin on Jan. 11th, and the fee will be £1 5s. Twenty lectures on Science and Philosophy—the Conception of Matter—will be given by Prof. Leonard J. Russell on Tuesdays at 5.30 P.M. from Jan. 12th onwards at the same place. The fee for this course will be £2 2s., and in both cases members of the Institute will be charged half fees only. A full syllabus can be obtained from the Director, 88, Kingsway, London, W.C. 2.

BRITISH INDUSTRIES FAIR.—This fair will open concurrently in London and Birmingham in February next, and will include exhibits of chemicals and a variety of machinery and manufactures.

PHARMACEUTICAL SOCIETY.—The third evening meeting of the session will be held in the lecture theatre of the Society's House on Tuesday, Jan. 12th, at 8 o'clock, when Frank Browne, F.I C., and Dorothy G. Randle will read a paper on Some New, Modified, and Tested Formulæ of the British Pharmaceutical Codex.

WELSH HOSPITALS DINNER.—A reunion dinner for all ranks will be held at the Royal Hotel, Cardiff, on the evening of Jan. 16th. Colonel A W. Sheen will preside, and owing to the international match at Cardiff on that date a large attendance is expected. Tickets and further particulars can be obtained from Staff-Sergeant R. W. Hedley, Waterworks Department, City Hall, Cardiff.

FROM next Monday, Jan. 4th, all persons who are required to be insured under the National Health Insurance Act must also be insured under the Widows', Orphans' and Old Age Contributory Pensions Act. Health and pensions contributions will be paid on one card by means of combined health and pensions stamps which can be purchased from any post office.

RONTGEN SOCIETY.—A general meeting will be held on Jan. 5th, at 8 15 P.M., in the British Institute of Radiology, 32, Welbeck-street, London, W. Dr. G. W. C. Kaye will read a paper on a Combined X Ray Tube and Vacuum Pump Unit, and one on the Industrial Uses of X Rays. Mr. A. F. Dufton will speak on the Measurement of Radium during Radioactive Growth.

WIRELESS AT ST BARTHOLOMEW'S HOSPITAL.—A wireless installation, presented by the Radio Communication Co. through the *Daily News* fund, was inaugurated at St. Bartholomew's Hospital last week. The 612 head 'phones which, in addition to two loud speakers, comprise the reception equipment, were given by the British Thomson-Houston Co.

ROYAL SALOP INFIRMARY.—The Marchioness of Cambridge has laid the foundation-stone of a new children's wing of the Royal Salop Infirmary at Shrewsbury which will cost £20,000. The extension will provide 30 beds immediately and 40 others later on.

THE "DAILY MAIL" HOSPITAL BALLOT.—Lord Knutsford, presiding at the annual meeting of the British Charities Association, said that the surplus on the *Daily Mail* Hospital Ballot amounted to over £87,000, the highest result of any project conducted under the auspices of the Association. Last year the Association allocated £15,000 to the London Ho pital; this year the amount has been £20,000.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART Special intensive courses in cardiology, of a fortnight's duration, are held at this hospital in January, July, and October every year; the first of these courses for the year 1926 will begin on Monday, Jan. 18th. The fee for the course, which is strictly limited to 10 members, will be £7 7*s*. A copy of the syllabus and full particulars may be obtained from the Secretary at the hospital, Westmoreland-street, London, W. 1.

DENTAL BOARD OF THE UNITED KINGDOM.—The fourth and last of the series of post-graduate lectures, illustrated by lantern slides, on General Anæsthesia, arranged by this Board will be delivered by Prof. Noel Paton, F.R.S., on the Metabolic Changes in Chloroform Poisoning, at the following places: In London, at the house of the Royal Society of Medicine, 1, Wimpole-street, W., at 8.30 P.M., on Jan. 11th; in Manchester, at the Medical School, University Buildings, Oxford-road, at 5.30 P.M., on Jan. 13th; and in Edinburgh, in the Surgery Theatre of the University, at 6 P.M., on Jan. 15th. The course is intended primarily for dentists and medical practitioners. Dental students are invited to attend. Tickets of admission are not required. It is the intention of the Board to publish these lectures in volume form early this year.

Messrs. J. and A Churchill announce that they are publishing this week a new work entitled "The Nematode Parasites of Vertebrates," by Dr. Warrington Yorke, professor of parasitology, University of Liverpool, and the Liverpool School of Tropical Medicine, and Dr. P. A. Maplestone, lecturer in the same school. About 900 figures will illustrate the work, and the object of the authors has been to provide a reliable guide to the allocation of parasites to their genera. A fourth edition of Prof. E. H. Starling's "Principles of Human Physiology" is also to be issued. It has been thoroughly revised and now contains 570 illustrations, 10 of which are in colour. "Recent Advances in Obstetrics and Gynæcology," by Mr. Aleck W. Bourne, obstetric surgeon, St. Mary's Hospital, is now ready.

Mr. Lionel de Rothschild has become President of the Hospital for Diseases of the Throat, Golden-square.

COVENTRY HOSPITAL SATURDAY FUND.—The Hospital Saturday collection in Coventry this year produced £22,025, and a hospital carnival yielded £3100 in addition.

LONG WAITING LISTS.—At the annual meeting of the Edinburgh Royal Infirmary Samaritan Society it was stated that on Dec. 1st last there were 2220 persons on the waiting list of the infirmary, and that two deaths had occurred on account of the delay in admission. At the Leeds Infirmary there is a waiting list of 1700.

METROPOLITAN HOSPITAL SUNDAY FUND.—At a meeting of the Metropolitan Hospital Sunday Fund, held recently at the London Mansion House under the presidency of the Lord Mayor, Sir William Pryke, June 27th was fixed as the date on which the annual collection will take place this year. The sum collected on Hospital Sunday in 1925 was £91,811, the fourth highest on record. £81,620 were distributed among 227 institutions. Of the total collections 10 *per cent.* was appropriated to nursing homes and the purchase of surgical appliances.

INSTITUTE OF PSYCHO-ANALYSIS.—The following courses of lectures will be given to medical practitioners and medical students at the Examination Hall, Queen-square, W.C., on Friday evenings at 8.30 P.M., starting on Jan. 15th. The first three lectures on the Unconscious will be given by Mr. J. C. Flügel. Dr. Ernest Jones will then give six lectures on the Theory of Sexuality, to be followed by six lectures by Dr. James Glover on the Psycho-pathology of Anxiety States, Phobias, and Obsessions. Further particulars can be obtained from Dr. John Rickman, 20, Devonshire-place, W. 1.

CENTRAL ASSOCIATION FOR MENTAL WELFARE.—A course of eight medical lectures on Mental Disorders and their Early Treatment will be given in the Lecture Hall of the Six Point Group, 92, Victoria street, S.W., on Wednesdays, at 5.30 P.M., beginning on Jan. 6th. The lectures are intended especially for social workers interested in mental welfare. Dr. T. Beaton will deliver the first lecture, entitled the Nature of Mental Disorder and its Relation to Insanity, and the two following ones on Psychology. Dr. E. Mapother will give two lectures on Clinical Types of Mental Disorder and one on Methods of Treatment of Mental Disorders. The final lectures of the course, on Delinquency in Children and Methods of Investigation, will be given by Dr. E. A. Hamilton Pearson. Further particulars may be obtained from the Hon Secretary of the Association at 24, Buckingham Palace-road, London, S.W. 1.

DONATIONS AND BEQUESTS.—Mrs. Mary Anne Traill, formerly of Brighton, bequeathed £500 to the Royal Sailors' Rest, Portsmouth; £300 to John Groom's Crippleage and Flower Girls' Mission; £200 each to St. Dunstan's Hostel for the Blind, the Cripples' Home for Girls, Marylebone-road, the East London Hospital for Children, the Royal Surgical Aid Society, and the Boy Scouts' Fund; and £100 each to the Hospital for Women, Soho, the Royal Ophthalmic Society, City-road, and St. Mark's Hospital, City-road.—An appeal by the Mayor of Birkenhead on behalf of the local hospitals has reached £1500. In addition a collection made at Cammell Lairds yards on the occasion of the launch of H.M.S. *Rodney* amounted to £310.—The late Mr. T. R. Bolitho left by will, in addition to other bequests, £200 to the West Cornwall Infirmary; £100 each to the Liskeard Cottage Hospital; the Edward Main Hospital, St. Ives; the Miners' Hospital, Redruth; the Helston Dispensary; the Royal Cornwall Sailors' Home and Infirmary, Falmouth; the Royal Cornwall Infirmary, Truro; the Penzance branch of the Charity Organisation Society, and the Penzance Rescue and Preventive Society.—Mr. Hugh Shearwin Hemsley, of Hornsea, formerly of Headingley, Leeds, among other bequests, gave £3000 to the Wesleyan Methodist Foreign Missionary Society, as to £1250 thereof to be for medical missions connected therewith; £2000 to the Leeds General Infirmary to endow two beds; £1000 each to the Cookridge Convalescent Hospital, and to the National Children's Home and Orphanage (Dr. Stephenson's).—The following legacies and donations have been received by St. Mary's Hospitals, Manchester: Women's Guild of Service, £2500; the executors of the late Mr. J. D. Mitchell, £211; of the late Miss R. Hibbert, £150; of the late Selina Greaves, £100; and of Dickanson's Charity, £78.—The subscriptions to the Manchester Cancer Research Fund now stand at £8032, the latest donations being £250 from the Fine Cotton Spinners, and £100 from the Amalgamated Association of Operative Cotton Spinners and Twiners.—Mr. Frank Lloyd, of Sittingbourne Paper Mills, has given a donation of £10,000 to St. Bartholomew's Hospital, Rochester, Extension Fund.

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# Medical News.

University of Oxford.—The Board of Faculty of Medicine has coöpted E. Farquhar Buzzard, D.M., Magdalen College, and Malcolm H. MacKeith, D.M., Fellow of Magdalen College, as members of the Board for two years. The Francis Gotch Memorial Prize in Physiology for 1925 has been awarded to Joyce Wright, B.A., Somerville College. Proxime accessit: Jack Wynne Pugh, B.A., University College.

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*Part II., Physic, Pathology, and Pharmacology.*—D. Aserman, G. W. Bamber, W. A. Barnes, I. C. P. Beauchamp, J. A. S. Brown, Hon. C. B. Buckley, N. F. C. Burgess, R. T. Chadwick, H. A. Clegg, A. C. Copley, R. W. Cuningham, G. H. Day, G. W. S. de Jersey, J. H. Gibbens, N. T. Glynn, R. F. Guymer, C. C. Halliwell, J. C. Hogg, A. T. Howell, W. S. Hunt, J. W. W. Jepps, D. F. Lawson, G. A. Q. Lennane, L. J. Panting, W. R. H. Pooler, R. L. Rhodes, F. R. Sandford, E. M. Shackel, A. Simpson-Smith, H. B. Stallard, E. J. E. Topham, E. A. Trim, J. L. Warner, and H. M. Woodman.

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Master of Surgery.

James Whillis and Angus H. Whyte.

Bachelor of Medicine and Bachelor of Surgery.

Norman Davison, James W. Dickinson, Basil A. Dormer, Alan Gray, Louis Lavine, Richard A. Pallister, Ernest P. Pratt, Winifred M. Proctor, William S. Walton, and James Y. Woodhouse.

Bachelor of Hygiene.

Ian M. McLachlan.

Diploma in Public Health.

Ian M. McLachlan.

University of Liverpool.—At examinations held recently the following candidates were successful:—

Degree of M.D.

F. S. Fowweather, W. D. Jeans, R. J. Minnitt, M. Newman, and C. Voigt.

Degrees of M.B. and Ch.B. (Honours).

*Class I.*—C. A. Birch (distinction in Medicine and Obstetrics).

Final Examination for Degrees of M.B., Ch.B.

*Part III.*—A. Ashworth, Ethel Barrow, C. Baxter, E. I. Bieber, P. V. Dillon, F. R. Faux, J. H. Gilchrist, R. I. Greenshields, J. Hatton, Enid M. Hughes, T. S. L. Jones, Rebecca Katz, B. Kay (distinction in Obstetrics), Alice M. Luck, D. D. O. McLoughlin, Lilian W. Massey, J. Morrissey, E. R. S. Owen, W. J. Pierce, Thirza Redman, D. Roberts, F. B. Shevlin, P. Strelitz, J. Tarshish, J. E. C. Walker, and W. L. Webb.

*Part I.*—A. B. Anderson, J. H. Boultbee, W. S. Brindle (with distinction), A. N. Cameron, J. K. Cameron, E. Cohen, W. S. Creer, A. Dodd, W. J. Eastwood, K. Edmundson, Elsie A. Griffiths, I. Gurland, E. D. Irvine, R. N. Johnson, O. V. Jones, Theresa J. Lee, J. L. Lewis, F. E. Lomas, J. McHugh, S. G. Massey-Lynch, J. W. Pickup, A. D. Polonsky, C. Rigby, N. W. Riley, G. L. Roberts, Alfreda H. Slater, V. J. M. Taylor, J. P. Thomas, S. L. Tunnicliffe, D. P. de Villiers, E. N. Wardle (with distinction), P. H. Whitaker, and R. L. Wynne.

*Part II.*—Grace A. Austin, W. A. Davies, J. Halton, W. E. Hargreaves, S. P. Meadows (distinction in Forensic Medicine), J. Morgan, J. N. Parrington, E. S. Smith, and Joan Watkins.

Second Examination for Degrees of M.B., Ch.B.

*Part A.*—S. Alstead, E. T. Bates, *R. K. Bowes, S. Canter, J. H. St. B. Crosby, *T. B. Davie, Ariel R. S. Deacon, †T. L. Dowell, R. Doyle, H. R. Dugdale, J. H. Follows, R. A. Furniss, Agnes G. Gillespie, R. G. Gornall, J. J. Graham, G. T. Harris, E. W. Jones, Mary G. Jones, W. E. J. Jones, †T. Lasker, N. R. Lawrie, J. M. Leggate, H. Leiper, C. T. Mercer, Doris Morrison, H. Paterson, Elizabeth B. Robson, E. L. Rubin, †M. Silverstone, H. W. Smith, G. A. Talwrn-Jones, G. G. Warburton, and F. J. Welton.

* Distinction in Anatomy and Physiology. † Distinction in Physiology.

*Part B.*—S. W. Adler, Gladys A. Coventry, A. Dale, R. E. Jackson, K. Jilani, I. Kossow, T. C. Newman, G. W. Phillips, E. E. Prebble, and A. L. Williams.

Diploma in Tropical Medicine.

A. R. D. Adams, F. R. Ashton, Esther Ashworth, C. W. Bamford, J. Beinashowitz, G. Clark, B. A. Coghlan, Ivy Collier, P. G. Cumming, M. Fisher, M. S. Grutu, A. J. Hawe, Z. H. Jafri, Elvy I. Johnstone, J. R. Kerr, D. M. Mackay, M. M. el Mukkawi, L. G. Maldonado, S. F. Mar, B. P. Mozoomdar, D. A. Shan, E. R. Stone, C. G. Terrell, and F. Tooth.

Recommended for Milne medals: Dr. Adams and Dr. Hawe.

University of Birmingham.—At a Congregation held recently the following degrees were conferred:—

*Doctor of Medicine.*—Mabel Thorburn Johnstone, Horace Simkin Savage.

*Bachelor of Medicine and Bachelor of Surgery.*—Dennis Murray Bladon, Zaki Ahmed Goma, Constance Rougier La Trobe, Margaret Elizabeth Lovett, Dorothy May Payton.

University of Dublin, Trinity College.—It is proposed to celebrate the centenary of the new medical school early in January. The building of the new school was begun in 1823 and it was formally opened on Nov. 1st, 1825, by Prof. James Macartney, university professor of anatomy and chirurgery. On Wednesday, Jan. 13th, Dr. T. P. C. Kirkpatrick will deliver an address on the Early History of the School of Physic at a meeting to be held in the school, at which the Provost will preside. All medical graduates of the University are invited to be present. On the same evening a dinner will be held in the dining hall of the College at 7.45 p.m., for which medical graduates may obtain tickets at £1 1*s.* each. Academic dress will be worn. Accommodation is limited and applications for dinner tickets should be made as early as possible to the Dean of the Faculty of Physic, Trinity College, Dublin.

Territorial Army Medical Officers Association.—A dinner for Territorial medical officers, active and retired, will take place at the Café Royal, 68, Regent-street, London, W., on Friday, Feb. 12th, at 8 p.m. Officers proposing to attend are requested to communicate without delay with Colonel M. B. Ray, D.S.O., M.D., at 37, Russell-square, London, W.C.1. Lieut.-General Sir Hugh Jeudwine and Lieut.-General Sir William Leishman have intimated their intention to be present.

Lecturers to Midwives.—Post-certificate lectures arranged by the London County Council for 1926 are to be given in Northern London by Mr. T. W. Letchworth, Dr. Eric Pritchard, Dr. Janet Lane-Claypon, Mr. Alfred Richardson, Dr. T. Anwyl-Davies, Mr. J. M. Wyatt, and Dr. G. F. Stebbing, and in Southern London by Dr. W. Brander, Mr. Trevor Davies, Mr. Leonard Phillips, Mr. Leslie Williams, Mr. M. S. Mayou, Dr. Remington Hobbs, and Dr. Archibald Gray.

Royal Institute of Public Health.—The Council have awarded the Harben Gold Medal for 1925 (triennial), of the value of 50 guineas, to Prof. Baron Shibasaburo Kitasato, M.D., Director of the Royal Japanese Institute for Infectious Diseases, for his "eminent services to the public health." The Council have also made the Smith Award to Prof. Matthew Hay, M.D., LL.D., F.R.C.P. Irel., for his "outstanding merit as a medical officer of health." The Smith Award takes the form of a bronze statuette of Hygeia by Charles L. Hartwell, R.A., which was exhibited at the Royal Academy in 1910.

British Institute of Philosophical Studies.—A course of nine lectures on Life and Mind will be given by Prof. James Johnstone on Mondays at 5.30 p.m. at the Bedford College for Women, Regent's Park, N.W. The course will begin on Jan. 11th, and the fee will be £1 5*s.* Twenty lectures on Science and Philosophy—the Conception of Matter—will be given by Prof. Leonard J. Russell on Tuesdays at 5.30 p.m. from Jan. 12th onwards at the same place. The fee for this course will be £2 2*s.*, and in both cases members of the Institute will be charged half fees only. A full syllabus can be obtained from the Director, 88, Kingsway, London, W.C. 2.

**BRITISH INDUSTRIES FAIR.**—This fair will open concurrently in London and Birmingham in February next, and will include exhibits of chemicals and a variety of machinery and manufactures.

**PHARMACEUTICAL SOCIETY.**—The third evening meeting of the session will be held in the lecture theatre of the Society's House on Tuesday, Jan. 12th, at 8 o'clock, when Frank Browne, F.I.C., and Dorothy G. Randle will read a paper on Some New, Modified, and Tested Formulæ of the British Pharmaceutical Codex.

**WELSH HOSPITALS DINNER.**—A reunion dinner for all ranks will be held at the Royal Hotel, Cardiff, on the evening of Jan. 16th. Colonel A. W. Sheen will preside, and owing to the international match at Cardiff on that date a large attendance is expected. Tickets and further particulars can be obtained from Staff-Sergeant R. W. Hedley, Waterworks Department, City Hall, Cardiff.

**FROM** next Monday, Jan. 4th, all persons who are required to be insured under the National Health Insurance Act must also be insured under the Widows', Orphans' and Old Age Contributory Pensions Act. Health and pensions contributions will be paid on one card by means of combined health and pensions stamps which can be purchased from any post office.

**RONTGEN SOCIETY.**—A general meeting will be held on Jan. 5th, at 8.15 P.M., in the British Institute of Radiology, 32, Welbeck-street, London, W. Dr. G. W. C. Kaye will read a paper on a Combined X Ray Tube and Vacuum Pump Unit, and one on the Industrial Uses of X Rays. Mr. A. F. Dufton will speak on the Measurement of Radium during Radioactive Growth.

**WIRELESS AT ST BARTHOLOMEW'S HOSPITAL.**—A wireless installation, presented by the Radio Communication Co. through the *Daily News* fund, was inaugurated at St. Bartholomew's Hospital last week. The 612 head 'phones which, in addition to two loud speakers, comprise the reception equipment, were given by the British Thomson-Houston Co.

**ROYAL SALOP INFIRMARY.**—The Marchioness of Cambridge has laid the foundation-stone of a new children's wing of the Royal Salop Infirmary at Shrewsbury which will cost £20,000. The extension will provide 30 beds immediately and 40 others later on.

**THE "DAILY MAIL" HOSPITAL BALLOT.**—Lord Knutsford, presiding at the annual meeting of the British Charities Association, said that the surplus on the *Daily Mail* Hospital Ballot amounted to over £87,000, the highest result of any project conducted under the auspices of the Association. Last year the Association allocated £15,000 to the London Hospital; this year the amount has been £20,000.

**NATIONAL HOSPITAL FOR DISEASES OF THE HEART.**—Special intensive courses in cardiology, of a fortnight's duration, are held at this hospital in January, July, and October every year; the first of these courses for the year 1926 will begin on Monday, Jan. 18th. The fee for the course, which is strictly limited to 10 members, will be £7 7s. A copy of the syllabus and full particulars may be obtained from the Secretary at the hospital, Westmoreland-street, London, W. 1.

**DENTAL BOARD OF THE UNITED KINGDOM.**—The fourth and last of the series of post-graduate lectures, illustrated by lantern slides, on General Anæsthesia, arranged by this Board will be delivered by Prof. Noel Paton, F.R.S., on the Metabolic Changes in Chloroform Poisoning, at the following places: In London, at the house of the Royal Society of Medicine, 1, Wimpole-street, W., at 8.30 P.M., on Jan. 11th; in Manchester, at the Medical School, University Buildings, Oxford-road, at 5.30 P.M., on Jan. 13th; and in Edinburgh, in the Surgery Theatre of the University, at 5 P.M., on Jan. 15th. The course is intended primarily for dentists and medical practitioners. Dental students are invited to attend. Tickets of admission are not required. It is the intention of the Board to publish these lectures in volume form early this year.

MESSRS. J. and A. Churchill announce that they are publishing this week a new work entitled "The Nematode Parasites of Vertebrates," by Dr. Warrington Yorke, professor of parasitology, University of Liverpool, and the Liverpool School of Tropical Medicine, and Dr. P. A. Maplestone, lecturer in the same school. About 600 figures will illustrate the work, and the object of the authors has been to provide a reliable guide to the allocation of parasites to their genera. A fourth edition of Prof. E. H. Starling's "Principles of Human Physiology" is also to be issued. It has been thoroughly revised and now contains 570 illustrations, 10 of which are in colour. "Recent Advances in Obstetrics and Gynæcology," by Mr. Aleck W. Bourne, obstetric surgeon, St. Mary's Hospital, is now ready.

MR. Lionel de Rothschild has become President of the Hospital for Diseases of the Throat, Golden-square.

**COVENTRY HOSPITAL SATURDAY FUND.**—The Hospital Saturday collection in Coventry this year produced £22,625, and a hospital carnival yielded £3100 in addition.

**LONG WAITING LISTS.**—At the annual meeting of the Edinburgh Royal Infirmary Samaritan Society it was stated that on Dec. 1st last there were 2229 persons on the waiting list of the infirmary, and that two deaths had occurred on account of the delay in admission. At the Leeds Infirmary there is a waiting list of 1700.

**METROPOLITAN HOSPITAL SUNDAY FUND.**—At a meeting of the Metropolitan Hospital Sunday Fund, held recently at the London Mansion House under the presidency of the Lord Mayor, Sir William Pryke, June 27th was fixed as the date on which the annual collection will take place this year. The sum collected on Hospital Sunday in 1925 was £94,841, the fourth highest on record. £84,020 were distributed among 227 institutions. Of the total collections 10 per cent. was appropriated to nursing homes and the purchase of surgical appliances.

**INSTITUTE OF PSYCHO-ANALYSIS.**—The following courses of lectures will be given to medical practitioners and medical students at the Examination Hall, Queen-square, W.C., on Friday evenings at 8.30 P.M., starting on Jan. 15th. The first three lectures on the Unconscious will be given by Mr. J. C. Flugel. Dr. Ernest Jones will then give six lectures on the Theory of Sexuality, to be followed by six lectures by Dr. James Glover on the Psycho-pathology of Anxiety States, Phobias, and Obsessions. Further particulars can be obtained from Dr. John Rickman, 26, Devonshire-place, W. 1.

**CENTRAL ASSOCIATION FOR MENTAL WELFARE.**—A course of eight medical lectures on Mental Disorders and their Early Treatment will be given in the Lecture Hall of the Six Point Group, 92, Victoria-street, S.W., on Wednesdays, at 5.30 P.M., beginning on Jan. 6th. The lectures are intended especially for social workers interested in mental welfare. Dr. T. Beaton will deliver the first lecture, entitled the Nature of Mental Disorder and its Relation to Insanity, and the two following ones on Psychology. Dr. E. Mapother will give two lectures on Clinical Types of Mental Disorder and one on Methods of Treatment of Mental Disorders. The final lectures of the course, on Delinquency in Children and Methods of Investigation, will be given by Dr. E. A. Hamilton Pearson. Further particulars may be obtained from the Hon. Secretary of the Association at 24, Buckingham Palace-road, London, S.W. 1.

**DONATIONS AND BEQUESTS.**—Mrs. Mary Anne Traill, formerly of Brighton, bequeathed £500 to the Royal Sailors' Rest, Portsmouth; £300 to John Groom's Crippleage and Flower Girls' Mission; £200 each to St. Dunstan's Hostel for the Blind, the Cripples' Home for Girls, Marylebone-road, the East London Hospital for Children, the Royal Surgical Aid Society, and the Boy Scouts' Fund; and £100 each to the Hospital for Women, Soho, the Royal Ophthalmic Society, City-road, and St. Mark's Hospital, City-road.—An appeal by the Mayor of Birkenhead on behalf of the local hospitals has reached £1500. In addition a collection made at Cammell Lairds yards on the occasion of the launch of H.M.S. *Rodney* amounted to £310.—The late Mr. T. R. Bolitho left by will, in addition to other bequests, £200 to the West Cornwall Infirmary; £100 each to the Liskeard Cottage Hospital; the Edward Main Hospital, St. Ives; the Miners' Hospital, Redruth; the Helston Dispensary; the Royal Cornwall Sailors' Home and Infirmary, Falmouth; the Royal Cornwall Infirmary, Truro; the Penzance branch of the Charity Organisation Society, and the Penzance Rescue and Preventive Society.—Mr. Hugh Shearwin Hemsley, of Hornsea, formerly of Headingley, Leeds, among other bequests, gave £3000 to the Wesleyan Methodist Foreign Missionary Society, as to £1250 thereof to be for medical missions connected therewith; £2000 to the Leeds General Infirmary to endow two beds; £1000 each to the Cockeridge Convalescent Hospital, and to the National Children's Home and Orphanage (Dr. Stephenson's).—The following legacies and donations have been received by St. Mary's Hospitals, Manchester: Women's Guild of Service, £2500; the executors of the late Mr. J. D. Mitchell, £214; of the late Miss R. Hibbert, £180; of the late Selina Greaves, £100; and of Dickanson's Charity, £78.—The subscriptions to the Manchester Cancer Research Fund now stand at £8052, the latest donations being £250 from the Fine Cotton Spinners, and £100 from the Amalgamated Association of Operative Cotton Spinners and Twiners.—Mr. Frank Lloyd, of Sittingbourne Paper Mills, has given a donation of £10,000 to St. Bartholomew's Hospital, Rochester, Extension Fund.

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

### ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

**Wednesday, Jan. 6th.**

SURGERY: at 8.30 P.M.
*Discussion:*
The Surgical Treatment of Duodenal Ulcer. Opener: Mr. C. A. Pannett.

**Thursday, Jan. 7th.**

OBSTETRICS AND GYNÆCOLOGY: at 8 P.M.
*Specimens:*
The President (Mr. T. G. Stevens): (1) Carneous Mole retained Eighteen Months in Utero. (2) Two Unusual Cases of Ovarian Tumours.
*Short Communication:*
Dr. G. E. Gibberd: A Case of Obstructed Labour due to Conjointed Twins.
*Paper:*
Dr. Wilfred Shaw: Krukenberg Tumours of the Ovaries.

**Friday, Jan. 8th.**

CLINICAL: at 5.30 P.M. (Cases at 5 P.M.)
*Cases:*
Dr. Douglas Firth: Patent Ductus Arteriosus.
Dr. W. A. Milligan: Lymphangioma.
Dr. Bernard Myers: (1) Hysterical Dysphagia in a Child. (2) Tuberculous Peritonitis in a Child.
Dr. L. S. T. Burrell: Angio-neurotic Œdema.
Mr. R. Maingot: Carcinoma of Thyroid.
Other cases will be shown.
OPHTHALMOLOGY } at 8.30 P.M. (Cases at 8 P.M.)
LARYNGOLOGY }
*Cases:*
Mr. B. T. Lang: (1) Ruptured Optic Nerve. (2) Pigmented Mole of Iris.
Other cases will be shown.
*Discussion:*
Optic Neuritis in its Relation to Sinusitis.
*Speakers:*
Mr. E. D. D. Davis, Dr. Logan Turner, Mr. Stephen Mayou, and Mr. Foster Moore.
A selection of specimens from the Onodi Collection will be on view on Thursday afternoon, Jan. 7th, and on Friday, Jan. 8th.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

Monday, Jan. 4th, to Saturday, Jan. 9th.—West End Hospital for Nervous Diseases, 73, Welbeck-street, at 5 P.M. Special course on Nervous Diseases. Mon., Dr. Carnegie Dickson: The Pathology of the Cerebro-Spinal Fluid. Tues., Dr. Hildred Carlill: The Reflexes in Health and Disease. Wed., Mr. Lindsay Rea: Methods of Examining the Eye in Diseases of the Nervous System. Thurs., Mr. Laming Evans: Orthopædic Aspects of Nervous Disease. Fri., Sir James Dundas-Grant: The Auditory Apparatus in Nervous Disease. It should be noted that the first demonstration only takes place at the In-patient Department, Gloucester-gate, Regent's Park.—Bethlem Royal Hospital, S.E. Lecture-demonstrations in Psychological Medicine at 11 A.M. Tues., Dr. Porter Phillips: The Diagnosis and Symptomatology of Mental Diseases Sat., Dr. Thomas Beaton: Psycho-neuroses.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURES.

Friday, Jan. 8th (at Whitworth-street West Branch). 4.30 P.M., Dr. W. E. Fothergill: The Development of Vaginal Operations for Genital Prolapse.

# Appointments.

Hampstead General and North-West London Hospital: Brook, C. D. S., M.B., D.P.H. Lond., House Surgeon; Elliott, Mary H., M.B., B.S.Lond., Casualty Surgical Officer.

Liverpool and District Hospital for Diseases of the Heart: Beattie, Prof. J. M., M.D. Edin., Hon. Consulting Bacteriologist; Crawford, A. C., M.B. Liverp., D.T.M., D.P.H., Hon. Assistant Physician; Evans, W. Howel, M.B. Liverp., Hon. Pathologist; Fenn, A. W. B., L.D.S., Hon. Dental Surgeon; Fordyce, A. D., M.D., F.R.C.P.Edin., Hon. Physician, Children's Department; Harris, I., M.D. Konig., L.R.C.P., Hon. Physician; Jones, T. C. L., F.R.C.S. Eng., Hon. Consulting Surgeon; Leathart, P. W., B.Ch. Camb., Hon. Laryngologist; Oram, W. C., M.D.Dub., D.P.H., Hon. Radiographer; Robinson, A. L., M.D.Lond., F.R.C.S.Eng., Hon. Consulting Gynæcologist.

London Lock Hospital: Phillips, S., M.D., F.R.C.P. Lond., Hon Consulting Physician; Lane, J. E., F.R.C.S. Eng., Consulting Surgeon.

# Vacancies.

*For further information refer to the advertisement columns.*

*Ascot, Heatherwood Hospital.*—Res. Asst. M.O. £300.
*Barrow-in-Furness County Borough.*—Asst. M.O.H. and Asst. Tub. O. £600.
*Bedford County Hospital.*—Asst. H.S. At rate of £130.
*Belfast Joint Nursing and Midwives Council, Northern Ireland.*—Examiners.
*Birmingham General Hospital.*—Med. Reg. and Res. M.O. £155.
*Birmingham and Midland Eye Hospital.*—Res. Surg. O. £150.
*Canterbury, Kent and Canterbury Hospital.*—Third Res. M.O. £125.
*County of London Mental Hospital.*—Eighth Asst. M.O. £300.
*Derbyshire Royal Infirmary, Derby.*—Ophth. H.S. £200.
*East Sussex County Mental Hospital, Hellingly, Sussex.*—Pathologist. £500.
*Gordon Hospital, Vauxhall Bridge-road, S.W.*—Anæsthetist. £21.
*Hatton, Warwick County Mental Hospital.*—Jun. Asst. M.O. £250.
*Hospital for Consumption and Diseases of the Chest, Brompton, S.W.*—H.P. £60.
*Keighley, Victoria Hospital.*—Res. M.O. At rate of £180.
*Kent Education Committee, School Medical Service.*—Dentist. £500.
*Lenham Sanatorium.*—Asst. M.O. £100.
*London Fever Hospital, Islington, N.*—Sen. Res. M.O. £500.
*London Lock Hospital, 283, Harrow-road, W., and 91, Dean street, W.*—Hon. P. Also Hon. Surg. to Out-Patients.
*Macclesfield General Infirmary.*—Second H.S. £150.
*Maidstone, West Kent General Hospital.*—H.S. At rate of £220.
*Manchester City Education Committee.*—Asst. Sch. M.O. £600.
*Manchester Hospital for Consumption, &c.*—Res. M.O. £200.
*Metropolitan Asylums Board Infectious Hospitals Service.*—Med. Supt. £900.
*Middlesex Hospital, Mortimer-street, W.*—Two Asst. Radiologists. £100.
*Plymouth, Didworthy Sanatorium, South Brent.*—Res. M.O. £600.
*Royal Free Hospital, Gray's Inn-road, W.C.*—Second H.P.
*Sheffield, South Yorkshire Mental Hospital.*—M.O. £400.
*Singapore College of Medicine, Straits Settlements.*—Prof. of Bio-Chemistry and Prof. of Biology. Each $850–$1000.
*Southport Convalescent Hospital and Sea-Bathing Infirmary.*—Res. Med. Supt. £600.
*Sudan Medical Service.*—Four M.O.'s. £E.720.
*University of London, South Kensington, S.W.*—University Professor of Obstet. Medicine &c. £200.
*Victoria Hospital for Children, Tite-street, Chelsea, S.W.*—H.P. and H.S. Each at rate of £100.
*West London Hospital, Hammersmith-road, W.*—Hon. Obstet. Reg.
*Wolverhampton and Staffordshire Hospital.*—Res. Surg. O. £250.
The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments for Certifying Factory Surgeons: Tunbridge Wells, Kent; Dover, Kent; Loftus, Yorks, N. Riding.

# Births, Marriages, and Deaths.

## BIRTHS.

Elphick.—On Dec. 20th, at the General Lying-in Hospital, Lambeth, the wife of Cyril Henry Elphick, L.D.S., of a son.

Gray.—On Dec. 22nd, at Westerhall, Weymouth, the wife of Adam Gray, M.D., of a daughter (who only survived 48 hours).

Keys.—On Dec. 17th, at Ravello, Ruislip, the wife of Sydney Hudson Keys, L.R.C.P. Lond., M.R.C.S. Eng., of a daughter.

Reid.—On Dec. 24th, at Burntwood, Lichfield, Staffs, the wife of Dr. William Reid, of a son.

Wotherspoon.—On Christmas Eve, at Lewisham High-road, St. John's, S.E., the wife of Dr. John Wotherspoon, of a son.

## MARRIAGES.

Powell—McCullagh.—On Dec. 23rd, at University-road Methodist Church, Belfast, Abraham Thomas Watkin Powell, M.C., M.B., D.P.H., of Bury St. Edmunds, to Dorothy Mary McCullagh, L.R.C.P. Edin., L.D.S.

## DEATHS.

Lloyd-Owen.—On Christmas night, suddenly, after a shor illness, at Bron-y-Craig, Harlech, David Charles Lloyd-Owen F.R.C.S., J.P., Warwickshire, aged 82.

Maclean.—On Dec. 25th, at Penlee-gardens, Stoke, Plymouth John Cassillis Birkmyre Maclean, Surg. Rear-Admira (retd.).

Nettle.—On Dec. 23rd, at Parade House, Liskeard, Willia Nettle, M.R.C.S., L.S.A., V.D., J.P.

Stephenson.—On Dec. 21st, at Queen Mary's Hospital, Ro hampton, Major John Stephenson, M.C., late R.A.M.C.

Stirling.—On Dec. 27th, at Grange-road, S.E., Charle Stirling, M.B., C.M., aged 79.

Stocks.—On Dec. 19th, R. Woolsey Stocks, M.R.C.S., L.R.C. D.P.H., M.O.H., West Bromwich, aged 43.

Waugh.—On Christmas Day, after a short illness, Hen Dunn Waugh, M.D., of Onslow-gardens, S.W.

Wightman.—On Dec. 19th, John Prest Wightman, M.R.C. L.R.C.P. Lond., of Scalby, near Scarborough.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notice Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## THE HISTORY OF ANTHRAX IN THE WOOL INDUSTRY OF BRADFORD, AND OF ITS CONTROL.[*]

BY F. W. EURICH, M.D. EDIN.,

SENIOR HONORARY PHYSICIAN, ROYAL INFIRMARY, BRADFORD;
PROFESSOR OF FORENSIC MEDICINE, UNIVERSITY OF LEEDS;
AND FORMERLY BACTERIOLOGIST TO THE LATE ANTHRAX
INVESTIGATION BOARD FOR BRADFORD AND DISTRICT.

ON Feb. 27th, 1878, there appeared in the *Bradford Observer* the following letter:—

"Sir,—Within a month three woolsorters have died from blood poisoning contracted in the same shed of the same factory in Manchester-road. Occasional deaths from blood poisoning, through the handling of some foreign wools, may perhaps be inevitable, but the recurrence within so short a time of three such cases seems to suggest either that the wool itself, or the shed in which it was sorted, is specially unwholesome. May I hope for your help to induce manufacturers to remedy all that is remediable in this deadly trade! No doubt the death of a woolsorter means to the manufacturer merely the loss of an easily replaceable hand, but to others it means the loss, never to be replaced, of son, husband, or father. That I have just come from one such desolate home must be my excuse for troubling you with this letter"

This letter served its purpose. In the correspondence that followed it another writer pointed out that a score of men had died at Queensbury, six at Shelf, and in one month three out of nine sorters employed in a certain shed in Manchester-road, Bradford. Since that date the interest of the Bradford public in the anthrax question has never waned. At that time the nature of this "blood poisoning" had, of course, not been recognised, though the operatives themselves, vaguely conscious of its peculiarities, had called it "woolsorters' disease." It was not a new disease at the time of which I speak. The first case appears to have been noted in 1847, soon after the introduction of alpaca and mohair into this part of the country. The medical practitioners had, on the whole, been slow to note the peculiar features of these cases. Dr. Samuel Lodge, sen., had, it is true, investigated one of them, but his investigation had not led him to any hypothesis upon which further researches could be based.

### *Cause of Woolsorters' Disease.*

The letter just quoted, and the feeling roused by it, induced the coroner to order a post-mortem examination, at which Dr. J. H. Bell was present. Looking through his notes, which are in my possession, I find that he has labelled it "Case 7." His interest in woolsorters' disease was therefore not of recent birth. Indeed, he must have had some experience of this class of case, as we find him reading a paper on it before this Society at the March meeting of the same year. It is characterised by evidence of keen observation and careful reasoning—so typical of the man. After outlining the clinical features he discusses the pathology of the condition. He does not think that the disease is due to the inhalation of fibre, dust, and short hairs, for sorters do not appear to suffer more than other workers from cough; employments which are injurious to health from dust cause chronic—not acute—diseases of the lungs; the microscopical structure and chemical analysis of alpaca, camel-, and goat-hair show that they do not vary much from other wools which do not produce these effects; nor does the incidence of the disease appear to depend upon the amount of dust present. He is of the opinion that the disease is caused by the inhalation of a septic poison, but thinks it is a septicæmia caused by the inhalation of germs produced by the decomposition of animal matter. However, Dr Bell did not hold to this opinion long. A casual suggestion from Dr. Eddison, of Leeds, that the splenic fever of sheep and cattle might be the origin of this disease, caused him to review the evidence and to make further tests. By the autumn of 1879 he had satisfied himself that woolsorters' disease is pulmonary anthrax. His passion for accuracy was such that he could not understand that others might be more careless of the truth. This faith led him at times to accept statements without demanding proofs: and this was particularly in evidence when his practical mind turned to methods of prevention.

### *Early Preventive Measures.*

"How," he says in a later communication, "may they be prevented? Since the subject was ventilated a few months ago Messrs. Mitchell Bros. have had dangerous wools passed through hot water previous to their being sorted. No death nor illness of this kind has occurred from sorting wools so prepared. None can occur. The water removes the septic poison and the dust. If water is objectionable simple exposure of the wool to air for 24 hours is sufficient to render it perfectly innocuous."

Even after his discovery of the true nature of woolsorters' disease, he writes in the *Medical Press and Circular* of Dec. 24th, 1879.—

"I have tried for over two years to impress upon employers the necessity of washing or steaming dangerous wools before they are sorted This will *certainly* prevent the disease. They will not do this unless compelled."

That preventive measures could be enforced only by legal enactment he, of course, fully recognised; and as a necessary preliminary to this he asked for an independent inquiry by the Medical Department of the Local Government Board. Had he been supported by the medical profession in Bradford, he might have succeeded earlier, but only a comparatively small number of his colleagues took his view of woolsorters' disease. Many, indeed, still doubted that the disease was a pathological entity. His energetic spirit chafed at the delay. What could he do to hasten an inquiry? He was, however, undaunted and fearless, and his opportunity came in the spring of 1880. On May 5th there died in King-street, White Abbey-road, a sorter named Samuel Firth. He had been employed by Messrs. Mitchell and Shepherd, spinners and manufacturers, of Spring Mill-street, Bradford, in sorting Cape and "average" mohair, and later Van mohair. Dr. Bell, having attended the man, reported the case, adding to the certificate of death, which ascribed death to woolsorters' disease or splenic fever, the following remark: "from his employers' neglect in not having the mohair he was sorting disinfected beforehand." A coroner's inquiry necessarily followed and lasted three days. It was pointed out by the firm "that Dr. Bell had said the previous autumn that 'if Van mohair were washed it *could* not be injurious to the health of the sorters.' Now he appends a remark to his certificate to the effect that the mohair was not disinfected. We have done exactly what he said would be effective." Though his position was considerably weakened by this shifting of his ground, Dr. Bell attained his object. Public feeling was deeply stirred and the coroner's jury found that the sorting of all dry Eastern wool and hair is dangerous to life except under effective precautions, and made certain recommendations:—

1. That before the bale is opened it be steeped in salt water and remain in salt water not less than 12 hours.

2. That after the bale has been in water the necessary time the hair or wool be placed in a sud of hot water, washed, passed through rollers, and again washed in fresh sud of hot water, partly dried, sorted when damp, and as early as possible after washing; that the temperature of the water be 120° F. at least.

3. That the room be well ventilated, the floor swept daily, walls and ceilings once a month, and thoroughly cleaned and the walls whitewashed every six months with lime mixed with carbolic acid; that no wool or hair or other material be stored in the sorting room, no meals be taken in the sorting room nor food kept there.

4. That proper provision be made for sorters to wash in water near the sorting room.

And the jury further recommended that if no statutory law existed to enforce these arrangements means be taken to obtain the same for the United Kingdom with the object of placing the sorting of wool and hair under the control and inspection of the factory inspector. This was forwarded to the sanitary committee of the Bradford Corporation, who thereupon conferred with representatives of the sorters and received a number of resolutions from the employers which agreed in the main with those of the jury, but contained two important additions.

### *Sources of Infection.*

The first of these was an attempt at classification of wool and hair from the point of view of noxiousness. Hitherto Van mohair had received almost all the blame; now the materials were ranged in two classes. All average mohair, Cape mohair, pellton, and alpaca are to be sorted as usual while all Van mohair, camel-hair, and Persian wool are to be considered noxious and dealt with—i.e., steeped before sorting. To this second specially dangerous class there are to be added all damaged wools of whatever kind. I mention these two suggestions as they figure largely in later investigations; sufficient now to say that the relative degree of danger was deduced from the incidence only of anthrax among the sorters, and not from examination of the material, and that no definition of a damaged wool was given, its characteristics being taken as known only, as will appear in the sequel. It will that no mention is made of a precautionary measure which would appear to us to be a very obvious one—viz., the use of fans. This omission was, however, made good as a result of investigations which were carried on more or less independently of each other by three different bodies. (1) The Local Government Board had taken action and had instructed one of its inspectors, Dr. John Spear, to conduct an inquiry. (2) Prof. Greenfield, at that time director of the Brown Institute in London, had been commissioned by the Board of Agriculture to make investigations on its behalf. The importance of the relation of woolsorters' disease to anthrax had just then been emphasised by the occurrence of splenic fever among cattle on a farm at Harden through which the effluent from Harden mills was carried. (3) The third body was the Bradford Medico-Chirurgical Society. In October of 1880 it had appointed 12 of its members as a commission, of which Mr. Meade was chairman and Dr. Goyder secretary, to inquire into the nature of woolsorters' disease. A small subcommittee was appointed to make the necessary laboratory tests, among which were Dr. Bell, Dr. Appleyard, and Dr. Rabagliati. The results of each inquiry were the same. Dr. Bell's discovery was confirmed, and though one or two doubting Thomases remained—e.g., Dr. Tibbits, of Bradford—the identity of woolsorters' disease and anthrax was never again seriously called in question. Henceforth preventive measures and their enforcement engaged the attention of officials, masters, and men. Mr. Spear's report came as somewhat of a cold douche. It certainly had a sobering effect. No washing process which is compatible with the subsequent sorting of wool can give security. No chemical disinfectant has been discovered which will render wool innocuous without damaging it irretrievably; nor can the germs be destroyed except by a temperature so high as to injure the wool fibres. The precautions upon which he would mainly rely are: First, careful separation of fallen fleeces, preferably in the country of export; secondly, scrupulous cleanliness in the sorting rooms and in the persons of the sorters; and thirdly, withdrawal of the dust by fans.

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[*] Being a paper read before the Bradford Medico-Chirurgical Society on the occasion of the centenary of the Bradford Royal Infirmary.

The Local Government Board must have considered the report not sufficiently strong to enable it to take action; at any rate, no regulations enforceable by law were drawn up, and everything was left to the conscience of employers and to the force of public opinion. The regulations which in Bradford had been the outcome of the suggestions made by the jury in the case of Samuel Firth received the assent of the employers and sorters, and were voluntarily carried into effect by the majority of firms dealing with dangerous wools.

### *Manufacturers and their Critics.*

As cases of anthrax continued to occur with distressing though certainly diminished frequency, a second conference was held in Bradford in 1884 between the sanitary committee and representatives of the manufacturers and woolsorters. After considerable discussion the existing rules were extensively amended. The principal amendations were: (1) That no noxious material, alpaca, peliton, and Indian cashmere (an addition to the list of possibly dangerous hair) shall be opened in the sorting room, but in a place specially set apart for the purpose, separate and distinct from the sorting room, and shall be opened over a fan by a person capable of judging the condition of the material. (2) The sorting room for all classes of mohair, camel-hair, Persian wool, cashmere, and alpaca shall be provided with extracting fans in order that the dust arising from the material being sorted may be drawn downwards and thus prevented from injuring the sorters. The great advance of the rules upon the old lies in the inclusion among dangerous material of all kinds of mohair and of East Indian cashmere, and in the adoption of fans. While these rules—like the old—could not be enforced by law, there was some protection against the wilfully careless employer in the fear that some day a coroner's jury might find him guilty of criminal negligence. The majority of manufacturers did conscientiously try to carry out these measures, not only according to the letter, but according to the spirit of the rules; but a few conscienceless men now and again defied popular sentiment. Indignation would then be voiced in the press. Thus we find in the *Yorkshireman* a parody of verses popular in those days:

I should, were I of hasty turn,
With indignation boil
To think of those who fortunes earn
By letting workman toil
Amid the deadly Van Mohair
When at a little cost and care
Their lives might shielded be.
In Armley I'd offenders shut
To take their pick at oakum—but
It's nought to do with me.

Bell himself was very outspoken, not only against recalcitrant employers, but also against sorters whose supineness he would chide. Thus, in an open letter to sorters, he writes:—

"Is a woolsorter worse than a beast? Said Hodge to the Squire: 'Sir, that hole should be fenced or someone will stray into it and get killed.' Said the Squire to Hodge: 'That's their look out.' Said Hodge to the Squire: 'Your honour has horses: a horse may get in there and be killed.' Said the Squire to Hodge: 'That's a very different matter. If I lose a horse I lose £80; men cost me nothing. Get the hole fenced.' A man is less valuable than a beast according to the Squire. Does any sane man believe that if Van Mohair killed horses instead of men, it would not be thoroughly disinfected? Most certainly it would; but so long as men cost nothing, and horses cost money, the horses will be better cared for than the men. Woolsorters, are you men? Do you consider yourselves of less value than horses? Will you quietly go on being poisoned from day to day, struck down in a few hours with a horrible pestilence, rather than speak out like men, and refuse to touch the abominable stuff till it has been properly cleansed by those whose duty it is to cleanse it."

### *Efficacy of Early Preventive Measures.*

The next 11 years present little that is of interest administratively or historically. If we examine the effects of the regulations upon the incidence of anthrax in those years we find the number of cases greatly diminished, but this diminution is to be noted almost solely among those operatives who come into contact with the unwashed raw materials—e.g., the openers and sorters. In the various stages that follow upon the washing anthrax still occurred not much less often than it did in the olden days. As no further improvement occurred, and as cases of anthrax were being reported from other parts of the country, a Departmental Committee of the Home Office was appointed in 1896 to inquire into the conditions of wool-sorting and other kindred trades, with a view to the control of anthrax. Meanwhile the sorters were becoming restive, for pending its report, factory inspectors, it was alleged, relaxed the pressure which they had hitherto exercised upon employers to carry out the regulations of 1884.

Hence in places where regulations which were not compulsory had previously been applied these had now been allowed to lapse. One firm was accused of sorting inferior mohair without the protection of a fan, and other firms of having alpaca opened without the assistance of opening hurdles. At length in 1897 the report of the Departmental Committee was published and proved a disappointment. While making no additional recommendation of importance, it asserted that "the suggestion of disinfection, promising as it may appear at first sight, does not bear examination. Anything upon such an enormous scale as this industry would require is hopeless." Furthermore, it errs by defect in not taking into consideration the danger to which carders and combers are exposed.

### *Regulations by the Home Office.*

In February, 1897, Dr. Whitelegge, Chief Inspector of Factories, issued the draft of the long-desired new regulations for wool-combing framed by the Home Office, and which when definitely passed by the Home Secretary would have the force of an Act of Parliament. They were criticised severely both by masters and men, who found an able champion in the late Dr. Hime. As medical officer of health he had been largely instrumental in drawing up the Bradford Rules of 1884, and he now riddled the new regulations with all the eloquence and sarcasm at his command.

After a telling enumeration of all the faults of the new rules he proceeds with his indictment as follows: "Our Parliamentary representatives and Sir C. Dilke have endeavoured to influence the Home Secretary in this matter, but in vain. His regulations are to be obeyed and not to be amended. He has, indeed, promised that if future experience, by which, I suppose, is meant the occurrence of deaths from woolsorters' disease, proves the necessity for greater stringency in the regulations, he may then amend them. The *Observer* to-day attributes to the Superintendent Factory Inspector a statement which, if correctly reported, is one of the most remarkable dicta of historic times. He is represented to have said 'a mistake has been made in London—i.e., at the Home Office.' The sorters have vigorously asserted this all along. The Home Office has stolidly maintained it was right, and now the Superintendent Factory Inspector admits that the department he serves has made a mistake. It has made many." Finally the Home Secretary bent to the storm, and in August, 1897, a draft of the new rules was presented, the Home Office having adopted nearly all the suggestions made jointly by the Chamber of Commerce and the Bradford and District Trades and Labour Council. They fixed the minimum requirements of an efficient opening-screen and sorting-board, and in other and minor points amplified the Bradford rules of 1884, which thereby received legal sanction. Further amendments to these rules were issued in December, 1905, and on Jan. 1st, 1909, statutory regulations for the use of East Indian wool came into force.

*(To be concluded.)*

## PUBLIC HEALTH IN TANGANYIKA.

A REPORT by His Britannic Majesty's Government on the administration under mandate of Tanganyika Territory for the year 1924, recently issued by the Colonial Office, explains that the territory in question consists of a portion of the former colony of German East Africa. The total area is 373,500 square miles, including 20,000 of water. The population, according to the census of 1921, comprised 2447 Europeans (of whom 1598 were British subjects), 9411 British Indians, 789 Goans and Portuguese, 4041 Arabs, 352 Baluchis, 380 unclassified non-natives, and 4,107,000 natives. The European population is composed of officials, missionaries, planters, merchants, and employees of business firms and estates, while Indians and Goans find occupation as shopkeepers, clerks, and artisans.

### *Medical Services.*

The shortage of staff continues, but the position in this respect is gradually improving. During the year under review extensions were made to the hospitals at Kigoma, Mwanza, Songea, Tanga, and Mikindani, while plans were prepared for new hospitals at Moshi, Kilosa, and Dodoma. It is necessary at present to confine criminal and other lunatics in ordinary jails; this is most undesirable, and the erection of a central lunatic asylum to accommodate both criminal and civil lunatics is about to be commenced. A small asylum and jail for criminal lepers will also be erected at Dodoma. A substantial increase in the attendance at the different medical stations is reported. There are 34 main stations from which returns have been received showing a total of 21,080 in-patients and 146,010 out-patients, with 971 deaths. The great success incident in the treatment of yaws with bismuth has proved of great value in inducing sufferers from other diseases to apply for treatment, and the increase of attendance has been very largely due to the propaganda which has been instituted in this connexion. Besides the figures given above several thousand natives were treated for minor ailments at the smaller dispensaries in charge of African dispensers and dressers. Medical officers and sub-assistant surgeons are not entitled to fees in respect of advice to, or attendance on, African natives. No charges of any kind are paid by these natives for attendance, medicines, dressings, or maintenance at Government hospitals and dispensaries, whether they are treated as in-patients or out-patients, except in the case of Government employees drawing 100s. a month or more, and of employees of commercial firms, planters, &c. In regard to maternity and child welfare the initiation of any general scheme to deal with this question must be preceded by careful experiment, and any steps taken must be so designed as to secure that the facilities to be afforded will be acceptable to native women. A European nursing sister was attached to the Health Office at Dar-es-Salaam at the end of the year, and one of her duties is to ascertain by personal investigation the attitude of the natives and to endeavour to gain their confidence and to remove any prejudice existing as regards the treatment of maternity cases in hospital. A small maternity home is being provided in Dar-es-Salaam; should it prove popular with native women similar institutions will be erected in other parts of the territory. The missions still continue to do valuable work among the natives. Apart from general diseases, they devote special attention to the treatment of yaws, venereal disease, and leprosy. The general sanitation of the townships has been maintained in a satisfactory condition.

### *Epidemics.*

There were no serious outbreaks of dangerous infectious diseases during 1924. A few cases of plague occurred in the endemic areas in the Dodoma and Mwanza districts. Towards the end of the year what was believed to be a new focus of infection was found in the Mbulu subdistrict of Arusha; this outbreak resulted in 17 deaths. The decrease in the incidence of small-pox during 1921–23 was still more marked last year; 30 cases were notified, with 12 deaths. 101,000 vaccinations were performed. Influenza was responsible for 38 deaths, the number of cases not being known. While there does not appear to be any danger of a widespread epidemic of Rhodesian sleeping sickness, it is probable that competent observers would find numerous foci of infection throughout the very extensive area of the territory infested with the tsetse-fly of the morsitans group. In the Mwanza district, where Rhodesian sleeping sickness was found in 1923, a few fresh cases have been discovered, but where the instructions issued to the native chiefs by the senior commissioner have been complied with the disease appears to be completely under control. Early in the year reports were received that a disease resembling sleeping sickness was present in the neighbourhood of Liwale, a subdistrict of Kilwa. That it was sleeping sickness was confirmed at Dar-es-Salaam. The investigator estimated that less than 20 deaths had occurred during 1923 and early 1924; he found only three positive cases amongst the many hundreds of natives examined during his tour. In August a number of deaths suspected to be due to sleeping sickness were reported from the Ufipa district. A few cases of human trypanosomiasis have been reported from Kigoma and Ujiji on the shores of Lake Tanganyika. The medical officer stationed at Kigoma is investigating the question where these cases became infected, whether in this territory or in those adjoining. It is known that *Glossina palpalis* is common along the lake shore and that sleeping sickness was endemic during the German occupation. Clearings at landing and watering places have been maintained as far as possible and no further cases of sleeping sickness had been reported from the lake area up to the end of the year. The position requires further investigation. Treatment with Bayer 205 and tryparsamide (the latter kindly supplied by Dr. Louise Pearce, of the Rockefeller Institute) has been carried out, but reports on the results achieved have not yet been received. Both tartar emetic and soamin are also being used.

### *Venereal Disease.*

The treatment of venereal disease and yaws has been largely extended by the use of soluble salts of bismuth with most gratifying results. A special venereal diseases clinic was opened in the Bukoba district with the view, if successful in attracting the natives, to its general and systematic adoption later throughout the territory. The number of natives presenting themselves for treatment for syphilis was 2007 in 1923, and 1377 in 1924. The large population and its wide distribution render it almost impossible to ensure that any measures directed towards compulsory treatment could be administered satisfactorily. In these circumstances it is considered best to encourage the natives to present themselves voluntarily for treatment, thus ensuring the reduction of infectivity on a large scale. The improvement in the situation as regards yaws has been material, the number of cases treated in 1924 being 20,741, as compared with 3010 in 1923, 3123 in 1922, 1109 in 1921, and 630 in 1920. It is hoped that a still further increase will be effected in future, the organisation for dealing with the disease having now been elaborated.

### *Climate.*

Climate of the territory varies greatly according to the height above sea-level of the several districts. Roughly, four climatic zones can be distinguished, though even among these there are considerable local variations. In the warm and rather damp coast region, with its adjoining hinterland, conditions are tropical and the average yearly temperature is 78° F. The hot and moderately dry zone between the coast and the central plateau is characterised by low humidity of atmosphere, less rain, and a temperature rather lower. In the hot and dry zone of the central plateau, between 2000 and 4000 feet in height, the prevailing characteristics are low humidity, little rainfall, and a fairly high mean temperature, with great daily and yearly variations, sometimes exceeding 36° F. daily. The heat is dry, but not so trying to the European as the moist and steamy warmth of the coast, whilst nights are invariably cool. In the semi-temperate regions around the slopes of Kilimanjaro and Meru, of the Usambara highlands, the Ufipa plateau, and the mountainous south-western areas (5000 feet to 10,000 feet), frosts occur at the higher altitudes and the nights are cold. These districts enjoy a bracing climate and can alone be considered healthy for Europeans, but prolonged residence in these altitudes is apt to produce nervous strain even though physical fitness is maintained. There are two well-defined rainy seasons annually. Generally speaking, the long rains begin in February or March and last for two or three months, while the short rainy season extends from October to November, but the rainfall is low for a tropical country and droughts are not infrequent.

## A CHEERFUL HOSPITAL MAGAZINE.

THE editorial article in the *St. George's Hospital Gazette* for December remarks on the varied styles of hospital journals. They range from "the Athenæum type"—mainly composed of massive theses on obscure technical points—down to the somewhat ribald magazine written by the students for the students about the staff. To attain a happy mean which will amuse and edify everyone is very difficult indeed; but of the *St. George's Hospital Gazette* it can be said that its production and general plan are excellent. A contributor proposes that the hospital should launch a bold campaign of advertisement on the suffering public, and suggests the slogans: "All dressers wear spats and long white coats—Transfusions are performed with the 'best Blue Blood from Belgravia' (unless otherwise labelled)—Every suture is warranted hand-sewn," as likely to appeal to Londoners. Visitors are to be encouraged by a series of couplets such as: "If your life hangs by a wisp, ring the bell and ask for ——," and "Your appendix is a red 'un? Have it whittled out by ——." Whilst amongst more serious verse the nursery rhyme: "Little boy blue, Dyspnœic too, See how he's ailin'—He needs Digitalin," is an example of several that combine elegance with instruction.

## AN ANATOMICAL BLACKBOARD.

TEACHERS of elementary anatomy have often attempted to bring home to their pupils some of the facts with which they were dealing by the adoption of methods similar to that utilised by Miss G. Ewart in producing her anatomical blackboard.[1] Fixed points or lines, skeletal or other, were used as foundations on which the remaining parts could be built up or surface markings could be worked out. Miss Ewart, however, has combined on one large sheet the main parts of the body in outline, of a size a little larger than natural, so that the teacher has his wants of this sort at his hand. A simple method is employed by which any of the schemes can be brought to the proper level for the purpose. These schemes will probably be found to be very useful for the purposes which their designer had in mind, and can be recommended in these cases as an aid in teaching. They would not be so useful, probably, where more detailed knowledge and acquaintance is required; for such cases there is, curiously enough, too much in each chart, as, for instance, where the sterno-mastoid is indicated in the neck. Again, in this class, the whole bone is not wanted for surface marking, but only those parts that approach and can be definitely recognised from the surface. The conditions are different, however, among the students for whom these charts are primarily meant, and for these they should prove an agreeable aid.

## COPPER IN PEAS.

WHEN attempting to judge the innocence or harmfulness of the practice of adding small quantities of copper sulphate to brighten the colour of canned peas, we may expect to turn to the physiologist for information on two essential aspects of the question—namely, whether the combined copper of the vegetables can be liberated to a dialysable form by the ordinary digestive ferments, and whether experimental animals will absorb and excrete such liberated copper. Dr. J. C. Drummond has made a study of these two questions (*The Analyst*, 1925, l., 481) and his views, without much experimental detail, were given in a preliminary note read at a recent meeting of the Society of Public Analysts. The preservation of the green colour of vegetables on the addition of copper salts is largely due to the formation of a complex with chlorophyll, phyllocyanate of copper. The amount of copper necessary to preserve the vivid natural colour depends on the amount of chlorophyll present; an average of 50 mg. of copper per kilo is sufficient for most green vegetables. If a greater quantity of copper than this is added to the vegetables the excess of copper passes into combination with proteins from which it is certainly set free during digestion with pepsin and trypsin. On the other hand, it has often been asserted that the copper compound of chlorophyll (phyllocyanate of copper) is unattacked by the ordinary digestive juices of the mammalian alimentary tract, so that the metal is excreted without absorption. Dr. Drummond has shown that this distinction between ordinary protein compounds and chlorophyll compounds of copper is a false one, for copper is liberated in a dialysable form after digestion of the chlorophyll compound of copper with pepsin and trypsin. He investigated this question by in vitro and in vivo experiments. The first series of experiments were carried out by digesting peas in collodion thimbles surrounded by a circulating current of water, and these proved that copper was liberated in a dialysable form during digestion. This conclusion was confirmed by a series of experiments on dogs with Pavlov gastric fistulæ. To determine whether the absorption of small amounts of copper is detrimental, Dr. Drummond fed a group of rats on diets containing approximately one-third of their weight in the form of peas, both normal and greened. The rats on greened peas ingested approximately 1·5 mg. of copper daily per 100 g. weight of rat. The animals lived contentedly on this diet, and it is said that records of the animals' weights showed that the groups fed on coloured peas maintained an identical rate of growth with those fed on the ordinary peas. Post-mortems were carried out, and microscopic sections cut at the end of the tests failed to reveal any abnormality of kidneys or liver. We are not given sufficient details of these experiments to judge of their value as evidence, but presumably Dr. Drummond intends to give a fuller account of his work elsewhere, in which he will cite the number of animals used in the tests, the time they lasted, and the weight curves of the animals. In the meantime we may quote Dr. Drummond's final sentence: "The experiments on rats recorded in this paper make it questionable whether it has yet been proved that the absorption of small traces of copper over long periods of time is likely to lead to harmful consequences."

## MEDICAL MISSIONARIES.

IN the current number of *Conquest and Healing*, the organ of the Medical Missionary Association of London, it is stated that there are at present 463 medical missionaries holding British degrees or diplomas in the mission field, and of these 181 are women. The Church Missionary Society heads the list with 79. The United Free Church of Scotland comes next with 69, while third and fourth are the Wesleyan Missions with a total of 13, and the London Missionary Society with 33. The spring course of lectures under the auspices of the Board of Study for the Preparation of Missionaries will be held at the School of Oriental Studies, Finsbury-circus, London, E.C., beginning on Jan. 14th. Another course of lectures for women missionaries on Moral Hygiene in the Mission Field will be given by Miss J. E. Higson, Warden of the Josephine Butler Memorial House, Liverpool, at the S.P.G. House, 15, Tufton-street, Westminster, on Jan. 18th, 19th, and 20th. Full information as to these lectures can be had from the secretary, Board of Study, 2, Eaton Gate, S.W. 1.

## A MEDICAL CALENDAR.

WE have received a copy of the eighth medical art calendar, published by J. Philip Kruseman, Noordeinde, The Hague, Holland. The calendar, which is well produced, contains about 27 photogravure reproductions of pictures of medical interest. These are mainly Dutch, and include Rembrandt's picture of Tobias operating under the instruction of the angel, and works by Gerard Dou, the younger Teniers, and many others. Two weeks are allowed for the contemplation of each, and whilst all of them might not be received with acclamation in every part of the home, they form a suitable adornment to the doctor's room and may encourage his belief in the progress of medical methods. The price of the calendar is 6*s.*

## LIVINGSTONE COLLEGE.

BY the death of its founder and first principal, Dr. Charles Forbes Harford, the College has lost its most generous benefactor. The need of training in hygiene and elementary medical principles for missionaries out of the reach of skilled advice and in charge of ignorant people is a need which he saw clearly, and to meet it he withstood the opposition which arose when he put his ideas into practice and founded the Livingstone College to provide the necessary training. Students at the College now learn something of the practice of medicine and surgery and get a good grounding in preventive work in hygiene as applied tropical conditions. A number of physicians and surgeo give their services as lecturers, and clinical demonstratio are given at several hospitals; students may enter for full course lasting nine months or may come for shorte periods, from one month upwards. During the year total of 55, of various denominations, received instruction 42 also entered for short courses on the care of health in the tropics. The accommodation of the College is strained to the uttermost, and although it just manages to carry on with its present income, it would be able to do better work if more funds could be found and necessary repairs and improvements could be put in hand. The continued, and if possible increased, help of its supporters is asked in order that current expenses may be met, and, in addition, an attempt is being made to raise £3500 as a memorial to Dr. Harford. Subscriptions may be sent to the Treasurer, Livingstone College, Leyton, London, E. 10.

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[1] Anatomical Blackboard. London: H. K. Lewis, Ltd. 2*s.*

# An Address

ON

# LIFE ASSURANCE MEDICINE:

## ITS PROGRESS AND ITS LIMITATIONS.

*Read to the Assurance Medical Society on Jan. 6th, 1926,*

BY OTTO MAY, M.D. CAMB., M.R.C.P. LOND.,
PRESIDENT OF THE SOCIETY; PRINCIPAL MEDICAL OFFICER, PRUDENTIAL ASSURANCE COMPANY.

MY predecessor in the chair, Dr. G. G. Howitt, in his extremely interesting presidential address, reminded us how, almost imperceptibly, medical men came to be associated with the business of life assurance. Their first appearance was in the capacity that we now speak of as the "private medical attendant"; later arose the "medical directors," and still later, the actual examiners. In the early days of their association, the function of the examiners, broadly speaking, was to protect the company from the risk of adverse selection—to ensure that the proposers represented, as regards health, an average "cross-section" of the community. Later, however, it was gradually realised that life assurance could be placed on a broader basis than this, that it could be extended to cover lives impaired to almost any extent, provided that there was some prospect of survival for a reasonable period. Consequently upon this widening of the portals the responsibilities of the medical examiner became increasingly heavier. It was no longer a question merely of advising acceptance or rejection of a proposal; it involved, in the case of an "impaired life," the investigation of the nature and extent of the impairment, and, as a corollary, the attempt to estimate the effects of the impairment on the prospects of longevity.

The rapid advance, real or apparent, during the last 30 years in clinical, and particularly in laboratory, methods for the investigation of bodily function has resulted in striking changes in our outlook on the significance of various impairments, and I think it is not without interest to discuss in what directions, if at all, we can show any real advance since the foundation of the Society in 1894.

There are some, particularly the more juvenile among us, who are apt to assume that all change is progress, that we are moving forward in a direct line from darkness towards the light, and that each new "discovery" is a milestone on the road to the omniscience to which we all aspire. Would that it were so! But when I look through the early volumes of our transactions, when I see the wealth of clinical knowledge and shrewd judgment displayed in the papers read at those early meetings, I have an uneasy feeling that, in many respects, our progress has been more apparent than real, and that the elaboration of methods has proved by no means an unequivocal blessing.

### LIMITATIONS OF THE LIFE INSURANCE EXAMINATION.

It is perhaps true that, were one able to command for life insurance work all the resources of the modern hospital or clinic, we might well be able to arrive at a better estimate of the proposer's condition than was possible 30 years ago. But life assurance is essentially a business proposition, not an exercise in the niceties of modern laboratory methods. In practice the examination of the proposer is limited by two factors—the extent to which he will submit to the trouble and expenditure of time involved, and the amount of cash outlay which the Company is prepared to sanction for this purpose.

As regards the first of these factors, if the proposer is really anxious to be insured, he will doubtless be ready to fall in with any reasonable suggestions for special methods of investigation; but if, as is so often the case, he is indifferent as to the [illegible] the difficulty of inducing him to submit to such tests as, e.g., that of his sugar-tolerance curve, is obvious.

As regards the second point—the expense of special investigations—it is equally obvious that a company will hesitate to sanction the outlay of several guineas instead of the usual guinea except in the case of proposals for large amounts; in the case of doubtful proposals for smaller sums, they will prefer either to decline it outright or to come to a decision on such information as is contained in the ordinary report. It follows, therefore, that in the large majority of proposals a decision has to be reached on the findings of the ordinary clinical examination, and it is at least arguable that in this respect the modern practitioner is less, rather than more, skilled than his predecessor of 30 years ago—as a result of dependence on laboratory methods, which, in this case, are unavailable.

Having, I trust, disarmed criticism by this tribute to the virtues of the "nineties," and this confession of our own lamentable shortcomings, I may nevertheless, in all humility, suggest that modern methods may be to some extent helpful in our work. And were I asked to specify one particular point in routine examination in which we have really advanced during the period under review, I should unhesitatingly single out the measurement of arterial pressure.

### ARTERIAL PRESSURE.

The introduction of the sphygmometer into clinical medicine has been, in my opinion, one of the few real diagnostic and prognostic advances of recent years. From the point of view of prognosis, I regard it as the most important single item in our scheme of examination, and trust that the time will soon arrive when the measurements of both systolic and diastolic pressure by the auditory method will become an essential part of every life assurance examination.

It is sometimes said that the finger is the best judge of high tension, and that instruments are unnecessary or even misleading. Dr. W. Russell, of Edinburgh, has always maintained that a good deal of the pressure of the armlet may be required to overcome the resistance of a thickened or contracted artery, and that the reading is by so much greater than the real systolic blood pressure. The great majority of workers on this problem have, however, satisfied themselves that any error due to this cause does not exceed 5–10 mm. Hg, an error that is negligible compared with those [illegible] hyperpiesia at the Bath meeting of the B.M.A. It should be noted that they are based only on policies in force 1–4 years; at some future date I hope to be able to supplement this preliminary report by a larger experience extending over a much longer period.

The paper has been recently published[1] so I will refrain from quoting it in any detail; the following table is, however, from our point of view, its essential feature:—

| | M. and F. combined. | M. | F. |
|---|---|---|---|
| 1. S.A.P. not recorded.. .. | 97·1 | 103·3 | 77·2 |
| 2. „ under 140 .. .. | 102·8 | 105·4 | 83·8 |
| 3. „ 141–170.. .. .. | 133·6 | 133·1 | 139·5 |
| 4. „ over 170 .. .. | 219·6 | 255·4 | — |
| 5. „ „ 200 .. .. | 827·5 | — | — |

(The figures represent the ratio of actual to expected deaths in each group, taking the figure 100 as the ratio of actual to expected deaths in our ordinary branch policy holders medically examined at entry over this period, 1920–24.)

These figures offer striking confirmation of the view that high blood pressure is unfavourable to longevity; that the outlook gets rapidly worse when the pressure is over 170, and that at 200 and over the outlook is extremely unfavourable.

The other table of special interest refers to the relation of high pressure (200 and over) to albuminuria in 130 cases:—

| | |
|---|---|
| Albumin absent .. .. .. .. | 71·5 per cent. |
| Trace of albumin .. .. .. .. | 15·4 „ |
| Albumin in appreciable quantity .. .. | 13·1 „ |

### THE FUNCTIONAL EFFICIENCY OF THE HEART.

The other feature in which it seems to me that some progress has been made in routine examination during the last three decades has been the increasing recognition of the importance of tests for myocardial efficiency. In 1897 the late Dr. Theodore Williams read to this Society an excellent paper entitled the Influence of Heart Disease in Life Assurance. If any one of us is inclined still to believe that the real knowledge of the heart and its disorders began only with the introduction of the polygraph and the string galvanometer, I would suggest a perusal of Dr. Williams's paper as an able exposition of the position of cardiac medicine at the end of the nineteenth century. The following brief extract, from a paragraph dealing with "double mitral" disease, has a very modern ring:—

> "The loudness of the murmurs is no index of the danger of the lesion, but everything depends on the condition of the muscular walls. . . ."

Yet, in spite of this clear recognition of the importance of the heart's capacity to contract adequately, the paper contains no hint as to any tests for estimating what we now call the extent of the "field of cardiac response." But though this omission is so striking in the case of Dr. Williams's paper, yet we find the point not altogether ignored in the subsequent discussion. Appropriately enough, it came from the late Sir Thomas (then Dr.) Crosby, one of the soundest and most experienced examiners of his day. His words are as follows:—

> "An excellent plan, and one I have adopted for years and years, to find out the condition of the pulse, is to trot him round the room, to try the pulse also sitting and standing, and after a brisk walk."

So that, even in 1897, the value of an exercise test in life assurance practice was recognised in one quarter at least; it is curious that it took so long to find its way into routine practice; so far as I am aware, I was a pioneer when, in 1913, I introduced an exercise-tolerance test as one of the items in the examination forms used by my Company.

In the same discussion, Dr. C. Y. Biss sounded a note which strikes a very responsive chord in my own heart. He said:—

> "I have thought sometimes, especially in the teachings of hospitals, that it would be better to persuade the students not to begin with the stethoscope, but to begin in some other way—to very carefully find out the size of the heart and very carefully study the character of the pulse before going to the stethoscope. If we followed that rule ourselves these middle-life cases would not be so difficult to us as they sometimes are."

Myself, I would go even further than Dr. Biss; I say, in all seriousness, that it was a bad day for life assurance when the stethoscope was first applied to the heart; that it has done more to confuse the issues between proposer and company than most of us can realise. Conceive, if you can, the enormous number of perfectly good lives rejected, and, what is worse, made unhappy and invalided, by the discovery of a perfectly harmless "murmur"! Conceive, on the other hand, the number of thoroughly bad lives accepted as a result of the examiner's reliance on the method deprecated by Dr. Biss—acceptance of the stethoscope as the practical arbiter of the heart's condition—"no murmur, therefore a good heart." I repeat that, on balance, the harm done, not only to life assurance, but to medicine generally, by the auscultation of the heart, immeasurably outweighs the good. It is true that, in this respect, we are beginning to learn wisdom, but I feel that even now, in spite of the undoubted advances due to the "new school" of cardiology, the stethoscope still looms too large in the perspective of the heart examiner.

### PULSE IRREGULARITIES.

We have, however, I feel, made a more definite advance in the recognition of different types of pulse irregularity, especially in our ability to differentiate that due to premature contractions (extra-systole) from that due to a fibrillating auricle. It is true that, even now, there is some difference of opinion as to the significance of the former, as was made clear to us by Dr. Strickland Goodall's recent paper. But, allowing for this, our ability to diagnose the principal types of irregularity, and our knowledge of their prognostic value, is a real advance for which we owe a great debt to Mackenzie, Lewis, and their fellow-workers.

To sum up, then, I feel that, during the last 30 years, our methods of routine examination have been usefully enriched by (1) the measurement of arterial pressure; (2) the recognition of different types of pulse irregularity; and (3) the estimation of the field of cardiac response by an exercise-tolerance test, in which attention is paid, not only to the variations of pulse-rate, but to the amount of distress and the nature of the sensory symptoms evoked.

### SPECIAL METHODS OF INVESTIGATION.

When we turn to the *special* methods placed at our disposal during this epoch for the estimation of functional efficiency, we are confronted with a large number of methods of undoubted utility, provided that the proposer and the company combine to render their use practicable. Without attempting anything like a complete list, I would mention particularly (1) skiagraphy, especially of the chest and abdomen; (2) the Wassermann test; (3) the electro-cardiograph; (4) tests of renal function; and (5) sugar-tolerance tests by estimation of the blood-sugar.

Time does not permit of even a brief comment on all of these, still less on many others which I have not mentioned, though each of us could prolong the list to an almost indefinite extent. I should like, however, to consider for a few moments the last two on my list—namely, tests of renal function and of sugar tolerance.

### ALBUMINURIA.

A few moments ago I spoke somewhat forcibly of the dis-service done to medicine, and especially to life assurance, by the application of the stethoscope to the heart. To some extent, though less strongly, the same criticism is applicable to the introduction of urinary tests into the routine examination of the individual. Is there any medical adviser to a life office who is not sick and tired of the ever-recurring problem of how to deal with the apparently healthy proposer in whom is found a trace of albuminuria or a trace of glycosuria? The first paper on a special subject read to the Society (May, 1894) was one by the late Dr. Vivian Poore on the Relation of Slight Degrees of Albuminuria to Life Assurance, and the problem there stated has remained with us ever since. It is true that, from time to time, methods have been, and are still being, brought forward to enable us to determine its significance by further urinary tests—the presence or absence of casts and other abnormal constituents, such as bacteria, pus cells and crystals, the nature of the "albumin," whether serum-albumin or globulin or nucleoprotein, their proportion to each other, the diastase content, and so on, but the problem remained unsolved. In recent years a good deal of work has been done on methods designed to estimate the functional capacity of the kidney as an excretory organ, and so to arrive at a knowlege of the extent of its impairment, if any. For medical prognosis, the most useful methods at present seem to be (a) the estimation of the blood-urea and non protein nitrogen, and (b) the urea-concentration test associated in this country with the name of MacLean. With regard to the former, it is held that a urea-content greater than 40 mg. per 100 c.cm. shows definite retention due to renal inefficiency. From the point of view of life assurance, I think that this may be accepted—i.e., that a urea concentration above this figure is evidence of renal impairment; the converse, unfortunately, is not true; the urea figure may be little, if at all, increased in cases of serious kidney disease, thus:—

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[1] Brit. Med. Jour., 1925, ii., 1166.

> "Little or no retention is found in parenchymatous nephritis until the terminal stages, hence these cases are not usually detected by an examination of the blood nitrogen distribution"[3]

And again:—

> "It has usually been claimed that blood analysis will indicate whether a particular patient is likely to go into uræmia. Although this is true in the great majority of instances, we have seen four cases in one year with typical uræmia and blood-urea contents below 40 mg. per c.cm. The non protein nitrogen content, however, was high in all."[4]

Hence we may conclude that the test is useful in confirming the presence of serious kidney trouble, but not in excluding it.

With regard to the urea-concentration test, its place in life assurance medicine can, in my opinion, be summarised as follows: A proposer whose urine fails to attain a urea concentration of 2 per cent. after the oral administration of 15 g must be regarded as suffering from definite impairment of renal function; if the examination of the urine and the general condition of the proposer suggest the presence of "granular kidney," the attainment of this concentration must be regarded as a favourable sign that the kidney involvement is slight. If the urine examination, on the other hand, suggests the presence of parenchymatous nephritis, the test has no value in assisting to a favourable prognosis, as many cases have been recorded in which the urea concentration was normal in the presence of advanced parenchymatous nephritis. Personally, my experience of this test has been very limited, and I should welcome the views of any member who can speak from a fuller experience As to the other tests of renal function, such as the phenol-sulphol phthalein excretion test, which have been found useful in surgical practice, I have had no experience at all, but I very much doubt whether any of them would find a practical application in our branch of medicine. On the whole, except for a limited help from the urea-concentration test, we do not seem to have made any appreciable progress in the last 20 years in our attempts to assess the risk in cases of albuminuria. The laboratory has afforded us no short cut, the decision still lies with the clinician from a general survey of all the available information germane to the task.

### GLYCOSURIA.

Very different is the position with regard to glycosuria and its assessment. The last 10 years have witnessed a remarkable advance in our knowledge on this subject. In 1914 I read a paper to this Society on the Significance of Temporary Glycosuria. In my paper I stated:—

> "The vast majority of cases of temporary glycosuria connote a temporary hyperglycæmia."

In the discussion, Sir William (then Dr.) Hale-White commented on this statement, that it

> 'may or may not be so, because it is very rare, surely, for a doctor to test the blood in a case of slight glycosuria, and I have often wondered whether some of the cases may not be those in which the glycosuria is presumably due to an abnormal condition of the kidney letting the sugar through"

Thanks to the improvements in the technique of blood-sugar estimation, it is no longer "very rare" for the blood to be examined in cases of glycosuria. The curve of the blood-sugar percentages following the administration of 50 g. of dextrose is now comparatively easily obtained, and is a most valuable help to us in determining the significance of glycosuria. For us it represents a very real advance in our methods, and enables us to replace guesswork by precise knowledge I have availed myself of this test in a good many cases of glycosuria; some of them have been shown to be of undoubted renal origin—an abnormally low threshold—and these have been accepted at ordinary rates, if all other conditions were favourable. Others have been proved to be frank diabetes of slight or grave degree; in a few the result was of doubtful significance, the so-called "lag curve" indicating a delay in the coming into play of the storage mechanism, so that the blood-sugar concentration shows a short temporary rise above the threshold. This is not a suitable occasion for further detail, but in view of the great advances in this subject which have been made in recent years, I think we might well devote a meeting to the reconsideration of the whole subject of glycosuria, including the effect of insulin treatment on the prognosis in diabetes

So much for a sketchy outline of our progress in methods of examination. On the whole, I think it may fairly be said that we have made some definite advances in the period under review, and that there are reasonable hopes of still further advances in the near future But, when all is said and done, there is something in the examination of a proposer which can be neither measured nor weighed, which is beyond the range of clinical instruments or laboratory analysis. I mean the general impression conveyed to an experienced examiner. We all know quite well that the examination may fail to reveal any definite defect—that the replies to the specific questions in the medical report form may all be consistent with perfect health, and yet—— ! We feel, instinctively, but none the less surely, that his prospects of longevity are below par; that what, for want of a better term, we may call his "vitality," is poor Personally, I regard this as one of the most important factors in assessment, but, unfortunately, when the examination is conducted, not at chief office, but by the occasional examiner, it often happens that we lose the benefit of this impression. And the more we elaborate the methods of examination the greater the risk of overlooking this aspect, of "not seeing the wood for the trees." I do not advocate a return to the primitive method of examination by the candidate's appearance before the board of directors, but I do feel strongly that we should never lose sight of the fallibility of most of our tests, and that we should give full weight to the indefinable, but none the less valuable, attribute of "vitality."

### THE ASSESSMENT OF IMPAIRED LIVES.

When we turn from the conduct of the medical examination to the other aspect of our duties—that of assessing the extra risk, if any—we find even less evidence of progress during the period under survey.

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[3] Recent Advances in Medicine (Beaumont and Dodds), p. 61

[4] Ibid., p. 75.

For all practical purposes our methods remain entirely empirical; we attempt to translate some physical defect into terms of time or money with little to guide us except tradition and a hope that instinct will supply the answer denied to us by knowledge. When we suggest an addition of 5, 10, or 15 years for, say, an otitis media or an old empyema, do we arrive at our decision on any grounds which we could justify in a court of reason? For most of us, assessment implies a compromise between our hopes and our fears—our hopes of protecting the company and our fears of killing the business. Very rarely indeed is it based on any actual knowledge of the effects of the particular impairment on the expectation of life. On more than one occasion papers of great merit on this topic have been read to this Society by some of our more actuarially-minded members. I would mention especially in this connexion one by the late Dr. T. D. Lister, in 1901, on a Graphic Expression of Extra Risk as implied by an Addition of Years, and one by the late Dr. R. Hingston Fox, in 1902, on the Method of making Advances in Impaired Lives.

But the practical result of these, so far as I can gather, has been negligible. Nor is this surprising. Not many of us, I fear, possess the true statistical mind; still fewer of us realise exactly what is involved in the ordinary method of assessment. It would be an excellent discipline for us to try our hands at super-posing on a normal mortality curve our idea of the curve for some particular case which we are attempting to assess.

Consider, for example, the case of a man of 50 with a moderate degree of myocardial damage. For a healthy man aged 50 at entry, according to the O [M] table, the chance of his dying in the first year of assurance is 0·0074; in the tenth year 0·0291; in the twentieth year 0·0617, and so on. How will the myocardial damage affect the graph? An attempt to solve this simple example will make us realise what guess-work our assessments really are. It would be entertaining, if not flattering to our pride, to compare the answers of all our members if set an examination paper on these lines. Yet this is the problem which we implicitly profess to solve whenever we venture to rate up a proposal. This consideration raises in my mind the question—Does it not seem rather futile to go to a considerable trouble to determine the exact degree of impairment of a proposer when the translation of this into assessment rests on so vague and insubstantial a basis?

The fault, if fault there be, does not, however, rest entirely, or even chiefly, with us. Strictly speaking, the doctor should never be called upon to make an assessment; that should be the duty of his colleague the actuary. In actual practice, perhaps, it might best be done, as it frequently is, by the two in consultation. But it will never be placed on a really satisfactory basis until a joint medico-actuarial investigation has been carried out similar to, but on a wider scale than, the American investigation of 1912. It must aim at the production of mortality experiences for all the ordinary impairments, from data large enough to eliminate the fallacies arising from insufficient cases.

My conception of the ideal basis for assessment is somewhat as follows: The medical men, in committee, should draw up a list of all the important defects likely to be encountered in our work. The actuaries should then gradually accumulate the experience of the offices, and in course of time evolve from this material the mortality for these different classes. It might be advisable to subdivide some of the classes into three subclasses—slight, moderate, and severe. In the case, then, of a proposer suffering from one or more of these defects, the essential duty of the medical officer should be that of stating to which class or classes the proposer belongs. The actual assessment would then be made by the actuary from these data.

In this way I believe that assessment might ultimately become more rational and consistent than it is at present; of course, the offices which specialise in making large profits from impaired lives may quite possibly prefer the present method of rating, but that point would hardly affect the argument as to the theoretical advantages of the new method suggested. I realise full well the great difficulties in the way of attainment—the enormous amount of data required and the labour involved. But I see no reason to doubt the possibility of its ultimate achievement, though many presidents will pass this chair before it becomes an accomplished fact.

# FUNCTIONAL OR ORGANIC?

## SOME POINTS OF VIEW.

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THE subject of the minor mental disorders, called functional, should engage the interests—both scientific and humane—of practitioners, for it concerns a group of patients whose ills provide many unsolved problems of pathology and causation, while the nature and persistence of their complaints invite, if they do not sometimes exhaust, our sympathy.

### *The Organic Point of View.*

I will introduce my remarks on this point by citing an extract from a letter written to a consultant about one of these cases by her medical man. It describes succinctly the type of illness which I am going to discuss and reads as follows:

> "I want you to send an appointment to a Mrs. X. She belongs to a group all too common in private practice. I am sure some wise man like yourself will find a lesion in the cerebellum one of these days. The balance of judgment and sensation has gone wrong; they live in their pains, kill all their friends off one by one, and still continue to have pains. What happens in the next world after their departure from this I don't know. Lord help me! Will you, please?"

Follows an extract from the consultant's notes a week later:

> "Mrs. X, aged 63, widow, complains that she is always in pain all over; everything she eats turns to acid; she feels cold terribly, never warm; has pains like electric wires and doesn't want to be touched; feels hungry, yet doesn't know what she wants; has no proper sleep because of her pains; finds it hard to keep from crying. She has been like this for nearly eight years, much worse for the last two. Has been a widow 17 years. Husband died of a stroke. Kept home going for children until a few years ago, when they were all out in the world. Now has nothing definite to do. No previous illness, except that she suffered from migraine up till climacteric at 50. Good physical condition—looks 10 years less than her age. Arteries good. Blood pressure 145. No signs of organic disease. Full of grievances and self-pity."

Further extracts from a letter written the same day from consultant to practitioner:

> "As far as I can gather the trouble began several years ago, when she found the task of keeping house too much for her and gave it up. Since then she has been without any object of interest except herself and her sufferings. Her friend, Mrs. Y, tells me that she never goes out, and makes no friends. I strongly advised her in the presence of her friend to find some kind of an object for herself in life—any regular duty which would in time make her feel she was essential to someone or to some organisation. I suggested, for instance, that she might do some visiting in connexion with the church, visit the sick, read to a blind man, anything so long as it takes her outside herself and makes her feel that she is indispensable to someone. [There follow some suggestions for symptomatic treatment and hypnotics. Finally:] So much for my suggestions as to physical treatment, but it is her attitude of mind (not her cerebellum) which is wrong, and that in a woman of 60 is difficult to correct."

At first sight there appears to be a wide divergence of opinion between practitioner and consultant here. The one speaks of a lesion of the brain, the other of an attitude of mind. But are these two views really incompatible? True, the symptoms of the case belong to a class with which we are familiar, and do not in our experience lead to the development of any of the known physical signs of organic nervous lesions, or to any appearance post mortem from which we can discover the brain to have been diseased.

But we must not regard our armoury of physical signs as complete. It is only 25 years since the significance of the extensor plantar response was discovered. And again, the non-existence of demonstrable lesions, even under the microscope, is but negative evidence and takes us no further. It is but a few years since the symptom-picture of paralysis agitans, for instance, was proved in certain cases to have an organic basis in lesions of the basal ganglia and brain stem.

Let us again dip into the consultant's notebooks. This time it is a case sent up to hospital with the following note:

> "Would you please see the bearer, Mr. Z, aged 42. I don't think there is any actual lesion, but he is worrying himself into a state of neurasthenia. He is firmly persuaded that there is 'something wrong with his stomach' and that he needs an operation. I think perhaps the opinion of a consultant might reassure him."

As the patient walks into the examining room the consultant's suspicions are aroused by a certain immobility of the facies and rigidity of carriage. The gait is slow, the arms still and pronated. As the examination proceeds suspicion develops into certainty that the case is one of encephalitis lethargica.

The patient complains chiefly of vague abdominal discomforts described as a constant sensation of fullness, but sometimes of a feeling of nervousness which comes up from the stomach and makes him "all of a tremble" so that legs and arms shake This is especially brought on by worry. He has been working in his shop, but complains of what he calls "depressions"—pains come across the side of his head and things get mixed. There is a tightness on his head so that he cannot concentrate on his work. His legs get tottery and he is afraid to step out. The same feeling sometimes comes up his back and fixes his neck and the back of his head so that he cannot *move right or left*—that is to say, he can move, but only slowly and with difficulty. All these symptoms he himself attributes to a black draught which he took two years ago for constipation and which he is convinced injured his liver and kidneys. This was in February, 1923. After taking the draught he saw everything double for two days, and has never felt the same since. A short time afterwards he developed insomnia, which persisted continuously for many months.

may result from abnormal habits of mind. The discerning psychologist will, of course, admit that underlying all habit formation there must be some physical change, some alteration perhaps in the setting of synaptic junctions. He claims, however, that such changes are themselves the result of mental processes, and that they may be reversed by other mental processes. This may be easily proved in a case of frank hysteria with physical symptoms, such as a paralysed arm. So long as the patient regards the limb as a dead weight he cannot move it; when he has been persuaded to revise his attitude of mind and accept the arm as an active part of himself, for which he must accept control and responsibility, he recovers the use of it.

Equally striking results may be obtained in some other cases of neurosis, in which the disturbance is at a higher level, the symptoms being more obviously of a mental order. For instance, I shall quote in brief the story of a young man who developed a whole series of anxiety symptoms, including a phobia of blushing. On account of his illness he had already been absent from his work for three months. His real trouble proved to be the inability to meet certain sexual difficulties. He had been living away from home for the first time, and found himself exposed to temptations from which he had hitherto been sheltered. Being of a reserved and sensitive disposition he had reacted to these difficulties by endeavouring to shut them out of his mind. Thus he became self-conscious without any real insight into the cause.

As the result of a few common-sense talks he was first enabled to see his problems, then to view them from a new perspective, and finally to revise his whole attitude of mind towards the troubles of sex, realising that he was encountering a *very common difficulty* which he had to meet in the same way as hundreds of others before him—with courage, self-reliance, and self-tolerance. After going back to his work he wrote *a few weeks later: "It really is extraordinary how different the same world can look in so short a time."* He never looked back.

In many adolescent neuroses equally good results can be obtained. In cases of long standing and in older people treatment is less successful. But it may fairly be argued that in these constant use may have determined fixed patterns among the neurones [illegible] examples in neuro-pathology of the selective action of poisons, for instance, diphtheria, lead, alcohol, anterior poliomyelitis. We have even in neuro-syphilis and encephalitis lethargica some indication of a selective action among the higher functions of the brain, resulting in mental symptoms, which in the case of each disease are somewhat characteristic. Clinical experience also teaches us that mental symptoms may occur in a great variety of bacterial intoxications, the kind of mental disorder being very much the same whatever the organism concerned—a state of confusion which may vary in degree from a condition in which there is a sense of being muddled and unable to concentrate to a violent delirium with complete disorientation.

These mental states one may see in puerperal sepsis, in pneumonia, in typhoid fever, and in some febrile conditions of uncertain origin. From such mental illness the patient as a rule makes a complete recovery, indicating that the nerve-cells have merely been put out of action, not destroyed by the poison. Here, in addition to the mental symptoms, we have constitutional disturbance, but it is possible that poisons with a selective action upon the brain-cells may cause mental symptoms without provoking any constitutional reaction. The advocates of this theory look for the causation of the neuroses in focal sepsis of the teeth or tonsils, in latent infections of the renal, respiratory, or alimentary systems, or in errors of diet and metabolism.

Turning to my notebooks for light upon this aspect, I can find only a very few instances in which treatment of focal infection or metabolic error has produced that striking improvement in the mental symptoms which we should expect if these were entirely of toxic origin. There are several cases of early tubercle, but in all of these there is some hint of physical illness into the bargain.

There is a note, for instance, upon a single woman of 20, whose chief complaint was of loss of energy, irritability, and restless nights. She found herself unexpectedly nervous of traffic and jumpy, and her relatives found her rather peevish and difficult. She had what was considered to be a nervous cough, which sometimes made her sick. But she also had anorexia, and her lack of energy was largely physical. She had enlarged glands in the right axilla and neck, and the X ray showed enlarged and calcareous glands at the roots of both lungs. At the time she was working in a city office. After a month's rest out of doors in the country her symptoms had disappeared; she slept well, ate well, and had recovered her mental spirits and equanimity. The glands in the neck were much smaller.

On the other hand, I find many notes of patients complaining of anxiety, depression, and sleeplessness, in which it is recorded that tonsils or teeth had been extracted, vaccines from the stools given, or a special diet prescribed; for a short while the patient thought he was improved, but subsequently relapsed.

### *The Endocrine Point of View.*

Since the discovery that by the oral administration of thyroid extract it is possible to transform certain toad-like caricatures of humanity into alert human beings, the notion has developed that in the group of cases we are considering there may be some defect of internal secretion, or that the balance of the internal secretions is perverted. This idea has resulted in a great deal of empirical treatment. Unfortunately, there is very little scientific proof for the assumptions upon which such treatment has been based.

There are two methods by which it may be proved that a particular illness depends upon lack of an internal secretion. It may be shown that the illness or abnormality is constantly associated with deficiency or hypertrophy of one of the ductless glands, as in Addison's disease, Fröhlich's syndrome, eunuchism, Graves's disease; or the administration of an endocrine extract may be shown to produce a specific effect upon the disorder, as in myxœdema. The examples I have quoted exhaust the list of disorders in which such proof is forthcoming, and leave us still with the bulk of our neurotic cases unexplained. In my notebooks out of 800 consecutive cases of this type, three only proved to be cases of Graves's disease and one of myxœdema. The great majority had at one time or another been treated with various preparations of mixed glands or with thyroid without anything more than transient benefit in a few cases.

The endocrine theory of causation of the neuroses, therefore, though it must be considered tenable and is supported by certain instances such as I have quoted, still lacks proof. It may be that in this direction new methods of investigation will carry us further, but we must be cautious of accepting a theory merely because it is attractive.

### *The Exhaustion Point of View.*

There are those who designate the minor mental disorders which we are discussing under the title nervous exhaustion. What exactly is meant by this it is difficult to say. Unfortunately, the term is widely used without adequate definition. On the one hand, nervous exhaustion may be taken in a causative sense to imply that the symptoms are due to exhaustion of the nerve-cells; on the other hand, it may be interpreted in a symptomatic sense as comprising all those conditions in which undue fatiguability of the nervous functions is the most prominent feature.

In the latter—*symptomatic*—sense the term might perhaps be convenient. In most illnesses, from an attack of influenza to the cachectic state of malignant disease, mental fatiguability may be a conspicuous symptom. But the use of the word exhaustion instead of fatiguability in this connexion is inaccurate and misleading. In the normal person such symptoms of nervous exhaustion lead simply to a craving for rest, and when this is obtained in sufficient quality and quantity the symptoms disappear. Nowhere was this more apparent than in the war; a man could and would work at high pressure for 48 hours or more at a stretch—and indeed maintain his efficiency for such a period. At the end of this time there would be great subjective discomfort and objective irritability, but 12 hours' sleep as a rule would completely restore the mental equilibrium.

Unfortunately, for the argument of those who claim exhaustion as the important *ætiological* factor of the neuroses, the symptoms of the neurotic are not, as a rule, curable by rest. The patient may be sent to bed for a week and obtain a full allowance of sleep without being a whit the better. Indeed, if only the neuroses were really due to exhaustion, how simple the treatment of them would be! We probably should not even be discussing them, for they would not be of sufficient interest to comply with the criterion of scientific importance which I have demanded for my subject.

Actually, there is a group of neurotics in whom nervous exhaustion in the shape of insomnia seems to play an important part, patients in whom sleeplessness has developed as a habit and whose nerve-cells are probably suffering from accumulated fatigue. I say "probably" because there is no certain means of demonstrating fatigue changes in the cells. The proof lies in the results of treatment. Remedy the insomnia, and the symptoms will disappear. But these cases constitute only a very small percentage of the neurotics whom we encounter in practice. Nervous exhaustion, then, in the symptomatic sense means nothing at all; in the causative sense it cannot be proved, save in a small group of cases, to be an important factor in the production of the neuroses.

The "rest cure," nevertheless, remains a popular form of treatment and is often attended by results which, for a while at any rate, appear satisfactory. The reasons for its popularity are not far to seek. In the first place the patient likes it. The vanity of the average male in particular is flattered by the suggestion that his symptoms are due to overwork. There is a touch of the heroic about this which is comforting. Moreover, the "rest cure" means in all probability a respite from the external difficulties with which the patient has been contending, whether these be difficulties of disappointment at work or discord in the home. Naturally, therefore, in most cases the holiday gives relief. But with its ending the old difficulties have to be faced anew, the old symptoms are apt to return, and the patient, having once accepted the idea that overwork is to blame, feels that he is not yet fit to grapple with his problems but needs more rest. Thus, from moment to moment re-entry into the battle of life may be delayed until a habit of nervous invalidism is engendered, which it is difficult to break.

My own experience of the neuroses leads me more and more to the belief that in this way over-emphasis of exhaustion as a cause may do positive harm.

A young man of 18, for instance, consulted me in January, 1923, on account of inability to concentrate. In July, 1921, he had worked hard for an examination which he passed successfully. Thereafter, without any real holiday, he began working for a scholarship, which he duly obtained in September. In October he entered upon a new course of studies, and after a week or two developed the symptoms of which he still complained. He was then taken to see a physician who made the diagnosis of nervous exhaustion, and advised rest until he got better. He came to me three months later because he still felt unfit for his work. I found no organic disease nor any special worries, and accepted the exhaustion hypothesis, advising further rest, which involved staying away from his work for another term. In April I received a letter from his relatives saying, "He cannot yet bring his mind to concentrate upon study. We think it is better that he should wait until next October before resuming work."

I saw him again in August. He was then still not well. On this occasion he disclosed worries about a pain in the left groin which he associated with frequent seminal emissions. This led to a discussion of sex difficulties with more frankness on his part than he had displayed at the first interview. I began to be critical of my original diagnosis, and advised him to start work in October. He did so and got on well. Early in 1923 he came to see me again with a recurrence of his old symptoms, together with insomnia. This time I was determined to adopt a different attitude. I got him to discuss with me for an hour the particular difficulties of the moment—which were mainly work—and his attitude of mind towards them. I then told him as it was a Friday to take the week-end off, and begin work again on the Monday. I also gave him three cachets each containing 7½ gr. of medinal with instructions to have one ready at his bedside each night and to take it if he had any difficulty in getting off to sleep. He wrote a week later: "I am happy to say that I appear to have regained normal health. I had an enjoyable week-end followed by a slight relapse on Monday, the effects of which seem quite to have disappeared. I did not find it necessary to take more than one of the cachets you prescribed."

He came to me again seven months later with the old symptoms—indistinguishable from those of which he first complained. On this occasion again he proved to be worrying over trivial reverses at his work. He had already taken a week's holiday without feeling any better. We talked over his difficulties and I advised him to continue at once his studies for an approaching examination. He wrote four days later, "I am glad to be able to tell you that I am now feeling perfectly well and able to continue with work. I hope this will be the last time I shall trouble you with this matter."

I believe that in this case if we had continued to regard exhaustion as the cause and rest the remedy, we might still have been waiting for recovery, and that if more effective methods of treatment had been employed from the start a valuable year might have been saved.

### *Summary.*

Having considered the subject from several different aspects we are now in a position to review as a whole the probable nature and causation of the neuroses. We have to admit that the mental equilibrium may be upset in the same way by different causes, and that the mental symptoms resulting, for instance, from the toxæmia of early phthisis, may closely resemble on the one hand those caused by encephalitis lethargica, and on the other hand those which depend upon some undigested worry.

We have learned, therefore, the need of careful discrimination in diagnosis. We have to  aware of ascribing any particular mental symptom or group of symptoms to the action of a particular cause. We have to be constantly on the look-out for such causes as organic cerebral disease, latent toxæmia, disturbance of endocrine balance, and exhaustion. Careful examination will usually suffice to exclude these possibilities. Of the remainder it is claimed that there is, as a rule, something more than negative evidence for regarding them as dependent rather upon wrong habits of mind than the simple effect upon the mental processes of external causes.

Our verdict upon the relative importance of mental habit in these cases has a direct bearing upon their treatment. If we accept the psychogenic point of view we shall not be content to prescribe a rest cure, administer glandular compounds, or cultivate vaccines from the stools; nor shall we be obliged to resign ourselves to the notion of an incurable lesion of the brain. On the contrary, we shall endeavour to investigate the psychological factors at work and help the patient so to improve his mental attitude as to make a more satisfactory adjustment to his difficulties. This, doubtless, requires a good deal of courage. When we inform a patient that his symptoms depend upon faulty habits of mind, however tactfully we may put it, we are passing judgment upon him and asking him to accept some responsibility for his illness. Indeed, such acceptance of responsibility is an essential preliminary to successful treatment. Now, neither the average patient nor his friends and relations are willing to accept such responsibility if they can find some other explanation. They would far rather be told that the symptoms are due to overwork, to encephalitis, to toxæmia, or endocrine disorder. This is particularly true of the relatives in the case of children or adolescents whose faulty habits of mind are due to faulty management and control. It is precisely in these cases that happy results may often be obtained by means of psychotherapy combined with alterations in the domestic régime.

The practitioner who has the courage of his opinions and confidence of the family is sometimes in a position to achieve success. Unfortunately, however, to my mind there are those among the elect who, despite the facts which I have placed before you, proclaim wholesale this or that physical theory of causation as proven. Hence a way of escape for the patient who is unwilling to face his difficulties and an additional embarrassment for the practitioner. The patient seeks other advice and is told, perhaps, that the symptoms are due to some hidden toxæmia and that the remedy lies in its discovery and treatment. If other investigations prove negative there are always streptococci in the stools from which vaccines can be prepared. Prognosis may be, and usually is, guarded—for who knows how much permanent damage the toxins may already have done? But anyway the patient's self-respect and that of his relatives is saved. The medical man who offered the first opinion is discredited. And the opportunity for really effective treatment is lost.

I do not mean that all these cases are amenable to psychotherapy. In a great many the offending habit of mind is ineradicable, either because it is deeply rooted in a constitutional tendency or because it has become fixed by age. But I am convinced that many young persons develop into lifelong neurotics who might have been saved by the timely intervention of commonsense psychotherapy in the early stages of the malady.

Let me conclude with a plea for discrimination in the diagnosis, and commonsense and courage in the treatment of these cases, and above all for a healthy scepticism and the avoidance of cant and humbug. There will always be the neurotic who will not trust his doctor and who will refuse advice because it is unpalatable. To such a one the quack will offer —for a consideration—his panacea, and we may comfort ourselves with the reflection that each w probably get what he deserves—and one will ultimat deserve what he gets.

# THE TREATMENT OF DUODENAL ULCER.*

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THERE can be no shadow of doubt that a large number of patients ill with a duodenal ulcer get perfectly well, and remain so, under proper medical treatment. Equally beyond dispute is the fact that a smaller number who continue to suffer despite the most careful dietetic and medicinal remedial measures obtain relief by a surgical operation. These remarks are concerned with this latter group.

It is clearly impossible to devise and carry out any surgical procedure unless this be based upon some definite conception of the fundamental nature of duodenal ulceration. Of the various hypotheses of the origin and nature of gastric and duodenal ulcer, that which regards it as an infective lesion is the one which explains most satisfactorily the known facts of the disease. I believe gastric ulcer to be due to an infection with some specific organisms not as yet demonstrable, and that invasion of the stomach or duodenal wall takes place from the lumen of the alimentary canal. Conditions favourable to the growth of the organism would appear to occur at some stage in the interaction of the intestinal and gastric, or possibly pyloric, secretions. When the duodenal bulb, contracting in the presence of pyloric relaxation, causes regurgitation of its contents back into the stomach, they pass upwards along the gastric sulcus, the "Magenstrasse" of German authors. Here they meet the gastric secretions, and at some point along the lesser curvature the optimum conditions for the development of a gastric ulcer occur. When duodenal regurgitation fails we know how there is an apparent hyperacidity, and such patients are recognised as being prone to develop a duodenal ulcer. This is because, in the absence of duodenal regurgitation, the predisposing stage of interaction between the two secretions takes place now in the duodenum itself. Such an hypothesis explains the distribution of gastric and duodenal ulcers and is strengthened by the occurrence of gastro-jejunal ulcers. Here again the lesion appears, not as would be expected in the most acid cardiac region of the stomach, but where the gastric and duodenal secretions meet. These facts suggest that one way to induce the healing of a duodenal ulcer is to alter the environment of the organism in the duodenum. This, indeed, is done by gastro-jejunostomy, the most widely practised method of surgical treatment. But pathological observation also shows us that duodenal ulcers, like the corresponding gastric lesion, are very prone to become callous, to be surrounded by much inflammatory infiltration, and to become so rigid and poorly supplied with lymph that there are very great mechanical and physiological obstacles to the healing process. Just as in the stomach excision of ulcers has, in the long run, proved more effectual than gastro-jejunostomy, so it is suggested that excision of ulcers in the duodenum is on theoretical grounds a better method than the indirect.

## *Results of Gastro-jejunostomy.*

Whether such a belief should be put to the test depends upon the results which can be obtained by gastro-jejunostomy. It is here we come upon contentious ground. It is an undoubted truth that very many duodenal ulcers, even callous lesions, will heal after gastro-jejunostomy. There is not agreement, however, on the proportion of cured patients which results. Elsewhere I have set forth the statistics which have been published. Suffice it here to say that some of the greatest authorities—Moynihan, Mayo, Sherren—claim 90 per cent. or more cures. Such great satisfaction with the operation has not been expressed by other surgeons of eminence, more especially those on the continent of Europe, amongst others Finsterer, Haberer, Clairmont, and de Quervain. These latter authorities put the cures down somewhere about 70 per cent. or less. In a small group of patients which I investigated personally, the cures amounted to 69 per cent. Forsyth's interesting researches amongst doctors who, presumably, would receive early and efficient treatment, showed that 58 per cent. remained free from symptoms after gastro-jejunostomy. Lewisohn found that a little more than one-half the patients are cured and that 18 per cent. suffered subsequently from gastro-jejunal ulceration. Smith has found that in 17 per cent. of cases gross hæmorrhages occur after gastro-jejunostomy. Sometimes this bleeding may lead to a fatal result. Very much rarer is the occurrence of perforation after gastro-jejunostomy. Nevertheless this has happened.

It has been suggested that the discrepancy in the statistical results is due to faulty operating, that the poorer results come from gastro-jejunostomy being improperly performed. This explanation does not suffice for the series I reported. In these cases there was no question of faulty technique. It would seem to me that a more probable explanation is that different classes of cases are being dealt with. If a surgeon operates only upon callous and inveterate duodenal ulcers, his results will not be so good as he who operates upon the non-indurated ulcers of the anterior wall of the duodenum and includes them in his statistical results. For instance, I find very few soft ulcers of this kind on the operating table, because they seem to heal by the efficient medical treatment my patients have always received before resorting to surgery. Of 28 resections of the duodenum, in 53·5 per cent. there were anterior and posterior ulcers, in 28·6 per cent. a single ulcer on the pancreatic wall, and in only 17·9 per cent. a single ulcer on the anterior wall. In favour of gastro-jejunostomy we may say that it is an easy operation to do and has a small mortality, but it is not without a measurable risk in the ordinary surgeon's hands. In a small series I reported three deaths after the operation, all of which were due to lung complications. I do not think generally it falls much below 5 per cent. The reported death-rate from a number of clinics is very much higher. The mortality after operation for a jejunal ulcer is high.

## *Partial Duodenectomy.*

Turning to partial duodenectomy we are confronted with a difficult and tedious technical procedure, and very extensive surrounding fibrosis may make resection impossible, as happens, indeed sometimes with a gastric ulcer. The risks of the operation are particularly injury to the bile or pancreatic ducts or the pancreas itself. Yet with care they can be guarded against, so that the mortality of partial duodenectomy need not be high. Amongst the 28 cases of my own there were two deaths, both from broncho-pneumonia. In one patient the common duct was cut across, but implanted into the duodenum. The patient is well.

Finsterer has been able to carry out 71 resections with only a 1·4 per cent. mortality. Whether partial duodenectomy will take the place of gastro-jejunostomy will depend upon (1) the end-results obtained by the operation, (2) the development of a technique which will make the procedure more easily carried out. The last condition, however, is not absolutely essential. We do not yet know the end-results of duodenal resection. Finsterer reports 93·9 per cent. absolute five-year cures amongst 63 cases. De Quervain, a most careful and cautious observer, asserts that resection of the duodenum gives better results than gastro-jejunostomy, but he does not give figures.

Amongst 16 of my cases who have been operated upon sufficiently long for some indication of end-results to be obtained, 10 are absolutely well, 1 eats anything and has such slight symptoms that he can almost be classed as an absolute cure, 2 have each had one attack of indigestion lasting a fortnight only, and in both of them it occurred approximately one year after the resection, 1 man has had treatment by his doctor for hyperchlorhydria symptoms, and 1 man, 10 months after his operation, says he has a return of pain similar to that of his original trouble: the man whom I reported as having sustained an injury to his common duct has lost his indigestion pain completely, but probably he suffers from a mild cholangitis from time to time. He has never lost a day's work from illness since his operation.

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* Opening contribution to a discussion on the Treatment of Duodenal Ulcers at the Royal Society of Medicine on Jan. 6th, 1926.

These are the first few cases I operated upon by the method. The future alone will show whether partial duodenectomy should be substituted for gastro-jejunostomy and whether any modification in the *method is desirable.* Just as a limited excision of gastric ulcers proved disappointing, so I believe it necessary to resect more than the affected segment of the duodenum and in my later cases I have been removing a part of the pyloric region of the stomach also. Axial union of the stomach to the duodenal stump is the routine and usually practicable. It was done in 25 of 28 cases. The digestive process by this means would seem to be less disturbed than by gastro-jejunostomy.

I am far from recommending the general adoption of partial duodenectomy for duodenal ulcers in the present state of knowledge, but I do insist upon the fact that the results of gastro-jejunostomy are not so satisfactory that there is no need to seek some improvement in the handling of these cases. Partial duodenectomy has proved itself to be a practical procedure without undue risk, and an investigation of its possibilities and results is certainly warranted.

### *Duodenal Hæmorrhage.*

So much for uncomplicated duodenal ulcers. When bleeding occurs it is far more difficult to formulate a policy. In the first place there is a widespread belief that the hæmorrhage from a duodenal ulcer is never fatal. Whilst this is erroneous, the very existence of such a belief is witness to the fact that many patients recover under medical treatment alone. Yet the risk is there and it is by no means negligible. As in any other kind of bleeding, the best treatment theoretically is the direct. But this presents exceedingly great difficulties. Any operation in an exsanguinated patient involves a risk and an intervention should be as limited as possible. Unfortunately, serious bleeding usually proceeds from a branch of the gastro-duodenal artery, which means that the ulcer is situated upon the pancreatic wall or upper border of the duodenum. It is therefore difficult of access for excision, and ligation of the supplying vessels is not possible. Finsterer, indeed, advocates excision of the duodenum for hæmorrhage, but this is a method of treatment not to be lightly decided upon. On the other hand, I do not discard it absolutely as a method of treatment. Very recently I resected with success a callous ulcer stuck on to the pancreas in a man who, shortly before, had had a severe hæmorrhage, so that at the time of operation his blood contained only 54 per cent. of the normal amount of hæmoglobin. It was done without the aid of a blood transfusion, though ordinarily this would seem to be called for. Should removal of the ulcer be deemed too dangerous, opening the duodenum and cauterising the ulcer, followed by gastro-jejunostomy, is worth a trial. Dunhill carried this out with good result in one patient. Nevertheless, hæmorrhage from a duodenal ulcer is of the secondary type and is prone to recur after simple ligation. Should the ulcer fortunately be on the anterior wall, as occasionally happens, excision followed by gastro-jejunostomy is undoubtedly a good procedure. Gastro-jejunostomy alone has been done for duodenal hæmorrhage. It is a most uncertain measure. I have seen two patients die from recurrent hæmorrhage shortly after it. Finally, there are patients who are too ill for any surgical operation to be thought of. Starvation, rectal salines, morphia, and blood transfusion, with defibrinated blood because of the large amount of fibrin ferment present in it, are the measures to be used, and they are often effective. Too frequently the surgeon sees these patients only after repeated hæmorrhages. It would be infinitely better could the decision for or against surgery be taken at the earliest possible moment. The favourable time for intervention may easily be imperceptibly passed, but whether we should make it a rule to operate upon every patient with duodenal hæmorrhage, or await the progress of the case in the hope of spontaneous arrest, is a question which there are not enough observations available at present to decide.

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# EMETINE IN THE TREATMENT OF HEPATIC ABSCESS.

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IT has long been recognised that injections of emetine, when combined with surgical measures in liver abscess, appear to exert a distinct therapeutic effect in promoting the absorption of pus and obliteration of the abscess cavity, and it is generally conceded that in amœbic lesions of the liver this drug is distinctly more efficacious in extirpating the *Entamœba histolytica* than when this parasite invades the bowel wall.

Some authorities, however, go so far as to state that emetine injections are capable of curing amœbic abscess of the liver and bringing about the absorption of pus, even in the absence of surgical interference. For instance, Hodson[1] in recent papers claims that the pus of an extensive amœbic abscess is entirely absorbed after emetine treatment, and that therefore surgical measures should no longer be considered necessary until full doses of emetine have been employed, on the grounds that the analogy between amœbic abscess of the liver, gumma, and tuberculous abscess is a very close one, and that they should therefore be treated on similar medical lines.

A. S. Fry[2] has reported two cases in India in which the disappearance of signs and symptoms of abscess of the liver and apparent restoration to normal health was remarkable after 12 gr. of emetine had been injected. The records quoted are not very convincing, either that the pus was entirely absorbed, or that in fact suppuration of the liver had ever existed. No exploratory operation for the presence of pus appears to have been performed, and the period of observation subsequent to treatment appears to have been too short to obviate the possibility of a relapse taking place at some future period.

### *Clinical Records.*

While employing emetine injections as an adjuvant in the treatment of liver abscess, we are by no means convinced that when given by itself it will cause absorption of the pus and consequent cure of the condition, as illustrated by the following cases:—

CASE 1.—This man is a pensioner who served in India, where he suffered from "pneumonia" and hepatitis in 1919; recurrences of this trouble took place in 1920 and in 1923, and it was found that he had liver abscess for which he was operated by the transpleural route and drained in the usual way. A second abscess occurred almost in the same situation one year afterwards, which was similarly treated, and he received on this occasion emetine injections. Two months subsequent to the second operation he was admitted to the Hospital for Tropical Diseases with symptoms of recurrence of abscess, with pyrexia, night sweats, epigastric pain, definite enlargement of the liver, and signs of involvement of the base of the right lung; *E. histolytica* cysts were found in the fæces and his blood showed a leucocytosis of 16,500. He was treated on purely medicinal lines with emetine injections (7 gr.) and 18 gr. of emetine-bismuth-iodide. After one month's hospital treatment a great diminution in the liver dullness had taken place, leucocytosis had disappeared, together with all signs and symptoms of his illness, and his physical condition had much improved. He had gained over 14 lb. in weight.

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[1] Hodson, V. S.: The Treatment of Hepatic Abscess with Emetine, Jour. Trop. Med. and Hyg., 1921, xxiv., 108–109; On Emetine in Liver Abscess (correspondence), ibid., 1922, xxv., 64; Amœbic Hepatic Abscess Treated with Emetine Only, THE LANCET, 1924, ii., 1275–1277.

[2] Fry, A. S.: The Spontaneous Absorption of Amœbic Abscess of the Liver under Emetine Therapy, Ind. Med. Gaz., 1924, lix., 488–492.

It was reasonable to suppose on the evidence so far accumulated that the liver abscess, as it undoubtedly was, had been cured by medicinal means, but in this hope we were doomed to disappointment.

His health, after temporary improvement, once more commenced to deteriorate, so that two and a half months after discharge he reported with hyperæsthesia of the right side of the neck and pain in the region of the right shoulder-joint, sufficiently severe to prevent sleep. His other symptoms were similar to those on the previous occasion. X ray examination showed definite doming and fixation of the right half of the diaphragm. A leucocytosis was present as before. On a similar course of treatment the symptoms and signs subsided in an equally satisfactory manner, but after three weeks in hospital it was noted that, in spite of absence of pyrexia, a leucocytosis still persisted. The liver was then aspirated on 30/4/25 by Mr. P. Kilner and two and a quarter pints of thick yellow liver pus were evacuated with ease. Since discharge from hospital he has regained his weight, and for the last four months has remained in good health.

The points of importance about the above case are: the occurrence of liver abscess seven years after date of presumable infection; the recurrence of a third abscess subsequent to two successful operations; the apparent recovery on emetine treatment without aspiration; and the eventual demonstration of a large amount of pus in the patient at *a time when all ascertainable signs and symptoms* of liver abscess had disappeared.

The second case of a similar nature we quote with the kind permission of Dr. G. C. Low:—

CASE 2.—The patient was a Chinaman, who was admitted to hospital in February, 1925, with enormously enlarged and tender liver, pyrexia, a leucocytosis of 28,000, and signs of intoxication. He was immediately placed on emetine treatment (12 gr.) and during this course two pints of pus were aspirated from his liver. General improvement in the patient's condition then took place for the next three weeks, as evidenced by decrease in size of the liver and disappearance of pyrexia. The leucocyte count at the same time fell to normal. A month later the signs of accumulation of pus in the liver and thorax became apparent, so that it was necessary to aspirate, and on this occasion one pint of similar pus was abstracted. Further aspirations took place on three more occasions, a total of eight pints being abstracted, the accumulation of pus resulting in spite of emetine injections (6 gr.). Finally, rib resection was performed, over five pints of fluid being evacuated, and an abscess cavity of 8 in. diameter in the right lobe of the liver revealed. The cavity continued to drain for five days, when death took place. At autopsy a large ragged abscess showing no signs of collapse or cicatrisation of the walls was found.

It is hardly necessary to emphasise the points of this case, but it was conclusively shown that emetine injections did not in any way prevent the reaccumulation of pus in the abscess cavity.

### *Conclusions.*

The purport of this paper is not to be taken as discountenancing the value of emetine in the treatment of liver abscess, but rather as emphasising that it is only to be used as an adjuvant to such a well-established surgical measure as aspiration. The rapid effect of emetine in acute amœbic hepatitis is probably to be ascribed to the action of emetine upon the amœbæ themselves, and the fact that none of these organisms was found in the liver pus after evacuation in the two cases reported may be also attributed to emetine, but there are no grounds for believing that, under ordinary circumstances, the administration of this drug in any way hastens or affects the absorption of pus which has already been formed within the liver.

## TWO CASES OF
## DISEASE OF THE CERVICAL SPINAL CORD.

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THE two cases of disease of the cervical spinal cord to which we call attention showed varying degrees of subarachnoid block, as well as other features of much clinical interest.

### *Hypertrophic Cervical Syphilitic Pachymeningitis.*

A caretaker, aged 31, complained in September, 1924, of weakness in the shoulders and aching pain throughout the upper limbs. The left arm was affected more than the right, and he had on the left side "pins and needles" from the shoulder to the tips of the fingers. He felt his weakness most severely when he lifted, for example, a coal scuttle. In spite of treatment by massage he was getting worse. He said that he had contracted syphilis in 1905 and that he had been treated for this for two years. In the past he was in the regular army, and a boxer. He gave no history of trauma to the neck or spine.

He was seen by us early in January, 1925, and admitted to hospital on Jan. 7th. He showed marked winging of both scapulæ when his weight was supported by his extended upper limbs, due to weakness of the serratus magnus and the lower fibres of the trapezius on each side. At rest there was no deformity or visible abnormality, and apart from the scapular winging and a slight droop of the right upper lid there was no clinical evidence of disease. He had no headache. He stood erect, and the movements of his head and spine were properly and painlessly performed. He could actively elevate the upper limbs in a normal manner. There was no intrinsic atrophy or abnormal posture of the hands, and there was no herpes. There was no anæsthesia, dissociated or otherwise, and the reflexes of every variety were healthy. The electrical reactions of the muscles of the shoulder girdle and upper limbs were normal with the exception of the galvanic response in the right serratus magnus, in which A.C.C. was greater than K.C.C. Apart from the slight droop of the right upper lid there was no evidence of affection of the cilio-spinal centre. Pupils and optic discs were healthy.

The lumbar cerebro-spinal fluid was yellow and showed a coagulum. It contained 0·95 per cent. albumin. The fluid from the cisterna magna was colourless and contained 0·025 per cent. albumin. The fluid from both sites gave completely positive tests for syphilis. The condition clearly was active syphilis of the spinal meninges with intensity about the cervical cord, as shown by atrophic palsy of the serrati and lower trapezii (C. segments 3 to 7). In addition there was obstruction in the subarachnoid space. Hypertrophic pachymeningitis was diagnosed and the man was treated energetically with mercury and iodide of potassium. In a few days hiccup (C. segments 3 to 5) commenced and persisted, when he was awake and asleep, during the remainder of his illness. It developed within half an hour after cistern puncture. Weekly intravenous injections of novarsenobillon and fortnightly intrathecal injections of salvarsanised serum were commenced on Jan. 16th and 21st respectively, and the patient continued to take mercury and potassium iodide. On Feb. 6th paraplegia developed and increased rapidly. Sensation was lost up to the level of the second rib (C. segment 4), and urine was retained. The lumbar cerebro-spinal fluid remained yellow and the cistern fluid colourless. Lipiodol was not employed.

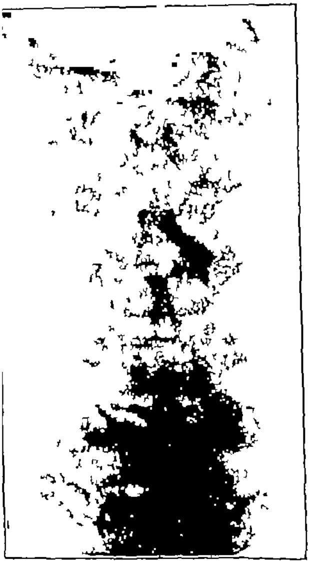
On Feb. 19th, as the severity of the symptoms was increasing in spite of treatment, and threatened an early fatal termination, cervical laminectomy was performed for the purpose of attempting to release the spinal cord from meningeal strangulation. Complete subarachnoid block was found. The meningeal coats were densely adherent to the bone, to each other and to the cord. They were stripped to the limited extent which was possible, but the cord did not pulsate. Although the operation seemed to be very well borne, the man died a few hours later. Autopsy showed the cervical cord encased in thickened, laminated, adherent meninges, and the findings suggested the impracticability of relief by any operation and the probable failure of any medicinal treatment to free the cord from strangulation. The microscope showed marked syphilitic endarteritis, round-celled infiltration and degeneration of the pia-arachnoid, and perivascular round-celled infiltration of the vessels of the dura mater Permission to examine the brain was not obtained.

We call attention (1) to the absence in this case of clinical evidence of internal hydrocephalus as a result of the block in the subarachnoid channel, (2) to the rapid progress of the disease prior to, and therefore not consequent upon, the administration of organic arsenic.

### *Intramedullary Cervical Gliosarcoma*

A woman, aged 41, was seen with Dr H. H. Rubra, of Crouch End, on Feb. 17th, 1925 In August, 1924 she had complained of a sharp pain along the outer part of the left forearm. The pain resisted treatment, but disappeared spontaneously two months later In October, 1924, she developed weakness in the left hand, and in November the right lower limb felt numb so that she failed to appreciate the coldness of a clean sheet with that limb Soon afterwards the left lower limb became weak. During January and February, 1925, she had complained of very severe generalised headache

FIG 1



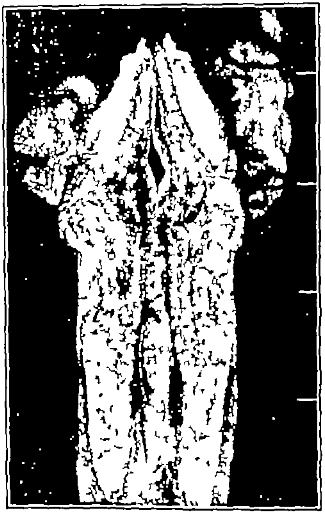
Intramedullary cervical glio-sarcoma part of the lipiodol held up on the right side opposite the fifth cervical spine

*Condition on Examination*—The pupils were healthy The right fundus showed three dioptres of papillœdema, with œdema of the surrounding retina and numerous hæmorrhages on the disc. The physiological cup was not filled The left disc showed slight striation at its upper margin. Atrophy of the intrinsic muscles (Th. segment 1) had produced a griffin hand, and throughout the left lower limb there was paralytic weakness of the upper motor neurone type The right lower limb, though powerful showed early reflex changes of a similar character The epigastric and abdominal reflexes on each side were abolished. The sphincters were healthy Throughout the right lower limb and the lower part of the trunk on the right side there was complete loss of sensibility to pain and temperature Cutaneous sensibility otherwise was nowhere affected

The immediate diagnosis was a lesion, possibly syringomyelia affecting especially the left side of the cervical cord She was admitted to hospital on Feb 23th, 1925 As further examination showed neither deformity of the spine nor any of the features commonly associated with syringomyelia a diagnosis of intramedullary tumour was made The cerebro-spinal fluid from the lumbar region was yellow and contained 0 6 per cent. albumin. The fluid from the cisterna magna was colourless and contained 0 01 per cent. albumin. Tests for syphilis were negative The xanthochromia of the lumbar fluid suggested that the tumour was expanding the cord and causing a subarachnoid block from within. This was confirmed on March 4th by lipiodol injected intrathecally into the cistern, being for the most part held up opposite the fifth cervical spine (Fig 1). The headache was relieved immediately by the lumbar puncture

By March 9th there was increasing weakness of the right lower limb and for three days there had been incontinence of fæces. On the 10th cervical laminectomy was performed to expose the lower four segments, and the clinical, serological and X ray diagnosis confirmed The meninges were not adherent. The cervical cord was uniformly distended and did not pulsate until the meninges were freely incised. When the incision reached the upper limit of the swelling cerebro spinal fluid spurted out. The distended cord was explored with a hypodermic needle with a negative result, and incised on its lateral aspect. This incision was closed by a muscle graft. Shreds withdrawn by the needle were found under the microscope to show sarcoma cells. A week later, the 17th, the swelling of the right disc had abated so that it was too slight to measure On the 21st and 23rd the patient had attacks of unconsciousness followed by severe frontal headache On the second occasion this was relieved promptly by cistern puncture On the 31st she was again unconscious for half an hour On April 1st the right pupil and the right palpebral aperture were seen to be slightly larger than the left

FIG 2.



Intramedullary glio-sarcoma expanding the cervical cord, the longitudinal body in the middle of the lower part of the figure is the spinal cord folded back from below Inches are indicated on the right.

*On the 9th* the lumbar cerebro spinal fluid was found to be far less yellow than formerly and to contain now 0 35 per cent. albumin. There was no swelling of either disc, but in the right fundus there were two small hæmorrhages. The patient had a bilateral infective parotitis.

Between April 7th and 15th patient was much confused and for three days she had recognised nobody Her features were animated and she chattered ceaselessly The lumbar cerebro spinal fluid was under low pressure and now almost colourless. The cistern fluid was under very great pressure and spurted out in a continous stream. Cistern puncture relieved the mental state for a day or two On April 22nd she was again unconscious The eyes floated aimlessly in the orbits and the corneal reflexes were abolished Immediately after a further cistern puncture, at which a fluid of moderately increased pressure was withdrawn, the corneal reflexes were re-established and the eyes moved under her control. On April 30th the patient was drowsy but conscious and her state contrasted greatly with that prior to the last cistern puncture During the examination a divergent squint was observed for the first time On May 1st some exudation was seen around the right disc which was not swollen. The left disc showed slight papillœdema. Death occurred on May 4th. Throughout the illness the temperature was subnormal

At the autopsy the cervical cord, with its cylindrical swelling of tumour, was removed and put aside to be fixed Fig 3 shows its appearance on section. The growth had extended to the brain base There were no deposits elsewhere The brain showed moderate internal hydrocephalus notably of the third ventricle. The intrinsic muscles of both hands were much wasted and the hands clawed

We draw attention to the severity of the headache and the papillœdema *in spite of only a partial block* in the subarachnoid channel, to the diagnosis which was made from the shreds withdrawn by the hypodermic needle, and to the duration of fairly comfortable life due to repeated cistern puncture.

# THE OXYGEN DEFICIENCY THEORY AND EXPERIMENTAL TETANY.

BY J. ARGYLL CAMPBELL, M.D., D.Sc. EDIN.

*(From the National Institute for Medical Research.)*

THERE are many theories regarding the ætiology and pathogenesis of tetany. All of these will not be dealt with in detail here. Recently Critchley [1] and Barker [2] wrote interesting reviews of them, and from these it is clear that, generally speaking, the favoured theories are (1) calcium deficiency, (2) alkalosis, (3) guanidine intoxication. It must be emphasised that both Critchley and Barker are careful to point out that only future research can elucidate the problem, since none of the theories will at present hold for all types of tetany. In the first place, it is difficult to define tetany. It includes mere hyperexcitability of the neuromyone (i.e., nerve-cell and muscle), and all degrees of tremor leading up to typical convulsions; indeed, it is often difficult to determine where tetany ends and convulsions begin. The brain and the spinal cord are the tissues chiefly concerned in tetany and convulsions.

Because of the resemblance of the phenomena in the various types of tetany and convulsions, many attempts have been made to find a cause common to all types both clinical and experimental, and the favourite theories are apparently the three mentioned above.

There is, however, another theory—the oxygen deficiency theory of Morris.[3] He found that there was hyperexcitability of the neuromyone in anoxæmia produced in various ways: that is by asphyxia, decrease of temperature, anæmia, alcohol, and histamine. He studied the oxygen content of the arterial and venous blood, and in that way any change in the oxygen "head" of the blood. Hitherto this theory has not received very great attention. During the past three years I have been studying the oxygen tension in the tissues. Most of my researches have been published in the *Journal of Physiology*.[4] Some of my results give strong support to this theory of Morris. At once it must be admitted that there are still many gaps to fill before the problem may be regarded as settled. Nevertheless, I give the following brief outline and synopsis of the physiological experiments I have so far completed, in the hope that the oxygen deficiency theory may receive the support which it appears to me to deserve.

### *Method.*

A moderate quantity—a few hundred cubic centimetres—of gas, usually nitrogen, was injected under the skin and into the abdominal cavity of an animal and left there until the $CO_2$- and $O_2$-tensions in the gas came into equilibrium with the tensions of these gases in the surrounding tissues. This usually occurred in a few days, the delay being due to the fact that the injection of the gas produced a temporary hyperæmia which required a few days to pass off.

Once constancy had been attained, the tensions remained remarkably constant over long periods of time, until all the gas had been absorbed. It was absorbed very slowly. If 500 c.cm. were injected, some of it still remained at the end of two or three weeks. In this way it was found that the normal $CO_2$-tensions in these situations—i.e., under the skin and in the abdominal cavity—were about 45–50 mm. Hg, whilst the $O_2$-tensions were about 20–30 mm. Hg under the skin and about 30–40 mm. Hg in the abdominal cavity of rabbits and cats. Very similar figures were obtained for monkeys, the only difference that the $O_2$-tension under the skin was similar to that in the abdominal cavity—namely, about 40 mm. Hg. These tensions do not give the tensions inside the cells, but in the fluid and spaces immediately outside the cell wall.

The presence of the gas cannot be considered a normal condition, but no evidence could be obtained that its presence in any way affected the results. It did not matter what gas or mixture of gases—i.e., $O_2$, $N_2$, and $CO_2$—was injected; the final tensions in a few days were always at the same level of constancy for each animal. Nor did the volume, within the wide limits tested, appear to affect the results. Moreover, the evidence obtained by other methods of investigation confirm these figures I have obtained. The tensions remained constant in any one animal for months—i.e., as long as they were under observation.

The method of injection of gas has not hitherto been used to any extent for the study of experimental alterations in tissue gas tensions, simply because the course of events had never been followed out continuously and carefully over days and weeks. The results given previously for tensions in injected gas were most confusing. Most of the observations had been carried out on patients with artificial pneumothorax, many of whom had pathological conditions in the thoracic cavity. Then, again, the thoracic cavity was a most inconvenient position to work with owing to respiration. It was whilst I was working with gas under the skin of normal unanæsthetised animals that the true course of events shown in Figs. 1 and 2 was established. Reference to my previous paper [5] will give full details of the method.

Having thus established a constant base-line for tissue tensions, it was possible to produce tetany and convulsions in an animal and at the same time to draw off samples of gas at intervals and to study changes in $O_2$-tension produced by such experiment.

### *Effect of Experimental Tetany upon the $O_2$-tension in the Tissues.*

In the following description of my experiments I draw no sharp distinction between tetany and convulsions, because it is impossible to separate them.

I produced tetany or convulsions by intravenous injections of guanidine, sodium salts, insulin, water, ammonium salts, cyanides, strychnine, by inspiration of $O_2$ at low tension, and by parathyroidectomy. In order to study the changes of $O_2$-tension in the tissues before the actual onset of tremors or convulsions, it was necessary to delay actual tremors and convulsions for some hours if possible, because muscular contraction itself had a marked effect upon $O_2$-tension, as will be seen later. Tetany was, therefore, induced gradually. In this way it was possible to demonstrate in most cases a marked fall of $O_2$-tension in the tissues—i.e., in the skin and in the abdominal cavity—before the onset of convulsions. Excessive hyperpnœa also markedly lowered the $O_2$-tension and it is a well-known cause of tetany. Alcohol, which sometimes causes tetany, had a similar effect upon $O_2$-tension. So had histamine, which causes increased excitability of the neuromyone [3]; this I include in my definition of tetany.

### *Results.*

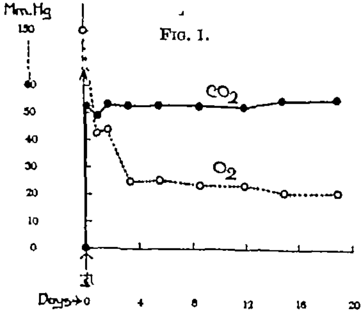
The results are grouped together in the table where I have compared the various theories. A fall of $O_2$-tension before the onset of tetany or convulsions is marked by a positive sign (+). In only three cases of all those tested was this fall of tension absent. These occasions were in cyanide poisoning, strychnine poisoning, and parathyroidectomy. They are very important causes of tetany and convulsions. On further consideration, however, we may remember that in cyanide poisoning the cell behaves as if it were in an atmosphere of nitrogen although oxygen is present; in other words, cyanide poisoning interferes not with the oxygen-supply or oxygen tension outside the cell, but with the intracellular oxidation processes. Now we have no direct proof that this is the case with strychnine or parathyroidectomy, but there is evidence that strychnine convulsions are modified definitely by oxygen administration,[6] the minimal dose being greater when oxygen is administered. That we did not obtain a fall of tissue O$_2$-tension in parathyroidectomy is the weak point in the argument, but there is a probability that there is some similar interference with intracellular oxidation processes as described for cyanide. Many hold that in parathyroidectomy alkalosis is the cause of tetany, and I find that an alkalosis produced by other means—injection of alkali—markedly lowered the O$_2$-tension in the tissues. This fall of O$_2$-tension is considered to be present also in the tissues of the brain and spinal cord which are immediately concerned in tetany and convulsions.

*Table Showing Comparison of Theories.*

| Experimental condition. | Fall of O$_2$-tension in tissues before onset of manifest tetany or convulsions. | Alkalosis. | Guanidine poisoning. | Calcium deficiency. |
|---|---|---|---|---|
| Excessive hyperpnœa | + | + | .. | .. |
| Guanidine injection | + | .. | + | .. |
| NaHCO$_3$ ,, | + | + | .. | .. |
| Na$_2$SO$_4$ ,, | + | .. | .. | ± |
| NaCl ,, | + | .. | .. | ± |
| Insulin ,, | + | .. | .. | .. |
| Histamine ,, | + | .. | .. | .. |
| Alcohol ,, | + | .. | .. | .. |
| Water ,, | + | .. | .. | . |
| Ammonium salts injection | + | ± | .. | . |
| Anoxæmia | + | .. | .. | . |
| Cyanide injection | .. | .. | .. | . |
| Strychnine ,, | .. | .. | .. | . |
| Parathyroidectomy | .. | ∓ | ∓ | + |

It will be seen from my series of observations that the O$_2$-deficiency theory as tested in this way comes out very well when compared with the more popular theories. It will be observed from the table that the guanidine poisoning theory has been supported by evidence from only two of the conditions—i.e., guanidine poisoning itself and in some researches in parathyroidectomy. The alkalosis theory has been supported by the evidence from excessive hyperpnœa, from injection of sodium bicarbonate, and from some observers' results with parathyroidectomy. The calcium deficiency theory is supported strongly by observations in parathyroidectomy [7] and in injections of some sodium salts.[8] This table may be incomplete, but, in so far as I am able to fill in the gaps from experimental evidence, the O$_2$-deficiency theory holds its own easily with the other theories, if there is one and only one common cause for the various types of tetany. This, of course, need not be the case.

FIG. 1.



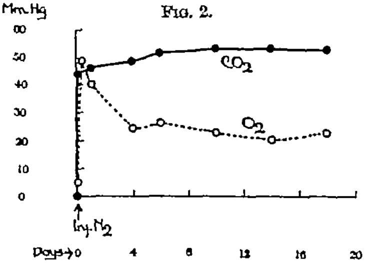
CO$_2$- and O$_2$ tensions in gas under the skin (rabbit) for 20 days following the subcutaneous injection of atmospheric air (*Jour. Physiol.*).

### *Ætiology of Tetany.*

There is yet further evidence in favour of the O$_2$-deficiency theory. When the actual tremors and convulsions developed, the O$_2$-tension in the tissues was markedly improved, on an average by 25 per cent. above normal. It would seem that the purpose of the muscular contraction was to increase the O$_2$-tension in the tissues. I have observed this marked rise of O$_2$-tension following ordinary muscular exercise and in every type of convulsions I have so far studied. These were tremors and convulsions following administration of cyanide, strychnine, insulin, and parathyroidectomy. Not only were the objective phenomena so very much alike in all these types but the O$_2$-tension was equally well raised by all of them.

I have endeavoured to determine how this rise of O$_2$-tension was produced, and found that a marked rise of O$_2$-tension followed production of acidosis by certain doses of such salts as NH$_4$Cl and CaCl$_2$, and also following the injection of certain doses of heart stimulants—e.g., caffeine and ammonia. I have also found that a rise of body temperature produced a slight rise of O$_2$-tension in the skin but not in the abdominal cavity. I have concluded in favour of tissue acidosis as the chief cause of the rise of O$_2$-tension following muscular contraction, the increase of acidity accelerating the liberation of O$_2$ from HbO$_2$. Perhaps, also, it relieves the nerve-cell in its internal oxidation processes in some way. In support of this we have evidence that administration of NH$_4$Cl and CaCl$_2$ are of value in the alleviation of tetany. Administration of O$_2$ is of value in some types of tetany and convulsions but not in others, perhaps because in these cases the cell cannot use O$_2$ although it is there.

FIG. 2.



CO$_2$- and O$_2$-tensions in gas under the skin (rabbit) for 18 days after the subcutaneous injection of nitrogen (*Jour. Physiol.*).

It may be argued why is it that we do not get tetany and convulsions in such cases as fainting. Here, obviously, the heart is weakened; there is a paralytic factor which probably prevents tetany; it is not likely that tetany or convulsions would be of any value if the heart is weak; the heart would not be able to stand it. In a convulsion respiration stops, O$_2$ diminishes and CO$_2$ accumulates for a time, and this itself weakens the heart. Yet in spite of this the O$_2$-tension in the tissues is markedly raised above normal after a convulsion. We also know that the general condition of an animal is often greatly improved by a convulsion—e.g., after insulin convulsions, and after parathyroidectomy, &c.

In clinical tetany the disease seems often to be selective, picking out a group of cells here and a group there. It is in these nerve-cells that we shall have to look for the cause of the disorder.

### *Summary and Conclusions.*

The experiments described support the oxygen deficiency theory of Morris in the ætiology of tetany. It is shown that in many different experimental conditions in which tetany eventually occurs, the tissue $O_2$-tension is markedly decreased before the onset of the tremors. It is shown also that muscular contraction causes a marked increase of $O_2$-tension in the tissues, and it is tentatively suggested that the purpose of the muscular contraction in tremors and convulsions is to supply $O_2$ at increased tension in the tissues.

*References.*

1. Critchley, M.: Arch. Int. Med., 1925, xxv., 100.
2. Barker, L. F.: Southern Med. Jour. (Alabama), 1923, xvi., 571.
3. Morris, N.: Brit. Jour. Exp. Path., 1922, iii., 101.
4. Campbell, J. Argyll: Jour. Physiol., 1925, lx., 347.
5. Campbell, J. Argyll: Ibid., 1924, lix., 1.
6. Gocan: Quoted by Jour. Amer. Assoc., 1925, lxxxiv., 530.
7. Collip, J. B.: Jour. Biol. Chem., 1925, lxiii., 395.
8. Greenwald, I.: Jour. Pharm. Exp. Therap., 1918, xi., 281.

# Clinical and Laboratory Notes.

## A CASE OF
## ISCHÆMIC NECROSIS OF THE HEART MUSCLE
### SHOWING EVIDENCE OF EMBOLISM ELSEWHERE.

BY GEORGES KLIONSKY, M.B., B.S. LOND., M.R.C.S. ENG.,

RESIDENT MEDICAL OFFICER, WORCESTER GENERAL INFIRMARY.

THE following case of a near relative of mine appears to illustrate well the clinical syndrome described by Dr. A. G. Gibson in THE LANCET of Dec. 19th, 1925, especially in regard to his reference to cases of embolism following the condition :—

The patient, a man of 53, had for some months preceding the attack to be described, complained of præcordial pain, aggravated by exertion, undoubtedly anginal in character. One evening in December, 1924, the pain became more acute and he felt faint, but soon recovered and was up and about the next day. On retiring to bed that evening, he had acute retrosternal pain and lost consciousness. His breathing, from the description given me, would appear to have been stertorous, and his condition was considered very critical. After two or three hours, however, he regained consciousness, but the next evening, when I saw him, he had amaurosis (but said he could see patches of red "resembling roses" in front of him) and he had right internal strabismus. The heart's action was weak, and there were no signs of valvular disease. There was no paresis anywhere else at that time, but he complained of severe headache, especially in the occipital region, and this con- showed multiple hæmorrhages and extensive œdema of both retinæ. The blood pressure was 110 mm. Hg (systolic). No abnormality was detected in the urine. The blood- urea was normal and the Wassermann reaction negative. An X ray photograph of the chest showed slight enlargement of the first part of the aorta. There was no history of rheumatic fever.

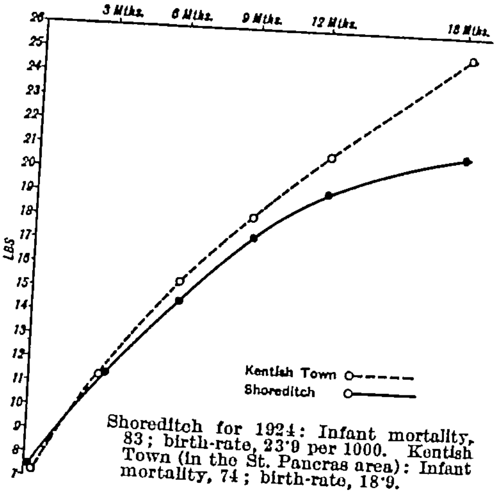
The patient gradually recovered, the retinal œdema slowly disappeared, and the hæmorrhages became absorbed. The strabismus also soon disappeared. At the present day his sight is sufficiently good to enable him to read news- papers and letters, but he still suffers from retrosternal pain, accentuated by exertion.

I think, in view of Dr. Gibson's paper, that the case, clinically at any rate, would appear to illustrate a sequence of events somewhat as follows: Atheroma of the first part of the aorta, with probable involve- ment of the coronary arteries; either thrombosis of a branch of a coronary artery or embolism due to the separation of a small plaque in the aorta; ischæmic necrosis of the heart muscle supplied by that branch; deposition of clot on the inner surface of the heart wall, resulting in the formation of emboli in the brain (one definitely causing the strabismus) and in the retinal arteries (causing the hæmorrhages, with secondary œdema of the retinæ). The case at the time offered considerable difficulty in diagnosis to the medical attendants.

## COMPARATIVE RESULTS IN INFANT WELFARE.

BY AMY HODGSON, M.D., D.P.H. LIVERP., M.R.C.P. LOND.

IT is a common practice to estimate our results in connexion with infant welfare work by means of the infant mortality figure. It has always been assumed that mortality and morbidity go hand in hand. I do not know of any evidence that such is necessarily the case. In the accompanying chart I have contrasted the average weight of a series of children under my care in Kentish Town with another such series in a generally "lower" district—Shoreditch. 300 children in all, attending the clinics fair regularly, enter into the curve shown. It w be seen that the Kentish Town curve corresponds almost exactly with the normal curve of variou authorities (Holt, Pritchard, &c.) that it is difficu to mark both on the chart. The Shoreditch babie were actually larger at birth (7 lb. 6 oz., as agains 7 lb. 3 oz. in Kentish Town), and held their initia advantage until 3 months of age. From tha time there is a gradual falling off, which become more marked from the time the children get on t general food. I may say that a sufficiency of mil was ensured throughout in each case. This wa issued from the centre (usually as dried milk) and actually *given* whenever necessary. When the child was breast-fed, milk was obtained for the mother in necessitous cases. It was found impossible to prolong the curve beyond 18 months, as the attendances became irregular, and the average is taken from too small a number of children.



Shoreditch for 1924: Infant mortality, 83; birth-rate, 23·9 per 1000. Kentish Town (in the St. Pancras area): Infant mortality, 74; birth-rate, 18·9.

I attributed the less good results we were able to obtain in Shoreditch to the accumulated effect of difference in conditions which I observed from the time the children first came up to the clinics in their respective areas. The Kentish Town babies were better off as regards (1) clothing; (2) general standard of mothering—the Shoreditch mothers being definitely more "elementary" in type; for the most part, they were supremely satisfied with their own standards of life; (3) facilities for fresh air and open-air life (Kentish Town is near to Hampstead Heath and to Parliament Hill Fields).

From the point of view of the health authorities, I should say that both areas were efficiently visited. The feeding in both clinics was the same, though, generally speaking, in Shoreditch the directions given were less faithfully observed. The attendances at the centre were less regular in Shoreditch. Housing conditions are bad in both areas. There is no evidence that any of the factors mentioned came into operation before the age of 3 months. Two further factors (of serious import to the Shoreditch babies) come into operation from 6–9 months; (1) The imminence of another baby—the children followed more rapidly one upon the other in the family in Shoreditch. This gives rise very constantly to a falling off in care. (2) The poor quality of general food obtainable for the children.

While a fat or vitamin deficiency was avoided by the free issue of cod-liver oil, there was certainly a deficiency of easily digested protein of good biological value—e.g., egg—in the case of the Shoreditch children. They lived too much upon bread, as the fresh fruit and vegetables ordered could not be afforded them. The mothers did not make broth; many mothers had very little knowledge indeed of cooking, and so were quite unable to make the best of the food available. The Ministry of Health are at present conducting an exhaustive inquiry into the health of children under school age. May we hope that a systematised comparison, on the one hand, between class areas and standards and, on the other hand, between financial conditions operating, will form part of any report on such inquiry?

I am much indebted to the authorities in Shoreditch and Kentish Town for permission to publish these figures.

# Medical Societies.

## SOCIETY OF MEDICAL OFFICERS OF HEALTH.

### FEVER HOSPITAL MEDICAL SERVICE GROUP.

A meeting of this Group was held at the Society's house in London on Dec. 18th last, when Dr. F. H. Thomson, the President, occupied the chair, and Dr. John Churchill Blake, assistant medical officer, N.E. Hospital, M.A.B., read a paper on the

### Schultz-Charlton (Blanch) Reaction[1] in Scarlatina.

In the series to be considered, he said, horse serum only was used. It may be injected into any part of the trunk or limbs provided that the rash is bright and not too coarse; but in most cases in his own series the chest and abdomen were chosen. The dose in all cases was 0·2 c.cm., and a very fine needle should be used in order to avoid deep injection or bleeding, which may obscure the reaction. In tests for diagnostic purposes the dilution should not be higher than 1 in 10, and in his series the percentage of positive results would certainly have been higher if this had been adhered to; but in a large number of cases 1 in 100 was the lowest dilution used. The time before blanching occurs varies from 4 to 5 hours to 30 hours. Where several dilutions are used on one patient the period seems to be longer the higher the dilution; there is a difference of about two hours between 1 in 10 and 1 in 100 and so on. The age of the rash, at any rate during the first three days, does not appear to have much bearing on the time taken for serum to cause blanching, and intervals of 4–6 hours are quite common on the third day. (On the fourth day the period is considerably longer.)

The maximum area in any case, said Dr. Blake, was 1¼ in. in diameter. The size varies with the degree of dilution but not proportionately, being usually ¼ in. between 1 in 10 and 1 in 100. Blanching may be complete or a faint rash may be present, and a central area of apparent inflammation, quite distinct from the redness caused by the puncture of a small vessel, has been observed in several cases. Usually the reaction lasts for at least 24 hours and often until the rash has disappeared. The area gradually increases in size until it attains its maximum, when it either remains stationary or gradually recedes, the rash returning in the blanched area until the site of injection can no longer be recognised.

In the majority of Dr. Blake's cases the test was not used for diagnosis but to provide information by which the blanching titre of the serum could be estimated. With most of the batches used blanching was obtained up to 1 in 500. As the "age" of the rash increased serum injected intradermally became less effective. On the first day (65 cases) the percentage of positive results was 78; the fall in efficiency was gradual up to the third day, and there was a big drop to 37 per cent. (eight cases) on the fourth day. The total percentage of positive results was about 73. Probably the percentage of positive results on the fourth day was higher than it should have been owing to the small number of cases, but blanching can certainly be obtained on the fourth day in some cases, although the rash has usually disappeared before the serum has time to take effect. Where the rash is still bright on the fourth day the reaction is generally negative even with 1 in 10 dilution. In several instances serum was given intramuscularly at the same time or a few hours before the Schultz-Charlton injection, and blanching occurred in all except two cases. This procedure, said Dr. Blake, might prove useful as an indication of the efficacy of the serum, the same serum being used in each case, especially if a second dose was considered advisable.

In order to test the specificity of the reaction it was tried with rashes which were known or suspected not to be due to scarlet fever; in all cases dilutions of 1 in 10 as well as higher dilutions were used. These cases included: One prodromal measles rash, five measles, one prodromal chicken-pox, two rubella, two serum rashes, two food rashes, three cases of erythema, one septic rash. No blanching occurred in any of these cases. Ten patients were injected intradermally with normal horse serum; in one case slight blanching was reported. In addition to the blanching titre, the Schultz-Charlton reaction shows the length of time that serum retains its antitoxic properties. A batch set aside for one month (in refrigerator) and used again gave good results.

*Discussion.*

Dr. R. A. O'Brien, director, Wellcome Physiological Research Laboratories, said that he could not help feeling that the Schultz-Charlton reaction is a measure of what is happening therapeutically. Presumably, therefore, so long as antitoxin can neutralise toxin in the skin, antitoxin will be useful therapeutically, though this is not yet proved. It has been shown that the Schultz-Charlton reaction is effective up to the seventieth hour, but the likelihood of its being positive after that time is small. The general tendency has been for serum, when given in toxic cases, to be efficient up to the third or fourth day, but after that period its efficiency is lessened. Dr. O'Brien considers that much bigger doses than those used by Dr. Blake could be given, and although in the work of his laboratory 0·2 c.cm. was the dose used, it was not clear that they were not losing by so limiting it. It is possible, he said, that by the use of a larger dose the number of positives might be increased. The fact that blanching has been obtained with 1/500 and 1/1000 dilutions is of especial interest. Whether or not that is a measure of the antitoxic value of the serum is a matter open to question. In his own view the method of judging the value of a serum by obtaining passive immunisation of a Dick-positive reactor is a very difficult one to carry out.

Dr. J. E. McCartney, director of Research and Pathological Services, M.A.B., suggested that the Schultz-Charlton reaction might be very useful to determine whether or not there are two distinct types of scarlet fever. Those which gave negative results in Dr. Blake's series might possibly have been cases of a different type of the disease. Special attention should be given to these negative cases.

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[1] In 1918 W. Schultz and W. Charlton stated that intradermal injection of serum taken from a normal person or from a convalescent case of scarlet fever into the skin of a person suffering from bright scarlet fever rash is followed by blanching of an area around the site of injection. W. Mair has shown that the serum of a normal person does not produce the effect unless he has been immunised against scarlet fever. More recently the serum of horses immunised by means of the hemolytic streptococcus has been used in doses of about 0·2 c.cm. The test has been applied to a number of rashes due to other infections and it is said that no blanching occurs.

Dr. William Mair, research pathologist, M.A.B., said that he has had no difficulty in giving 0·75 c.cm. of undiluted horse serum without causing any appreciable discomfort. Slight discomfort is produced at the beginning of the injection, but as soon as 0·1 c.cm. is given it appears to have a numbing effect on the nerve-endings and no further trouble is experienced. He believes that occasionally horse serum gives the reaction in a very mild degree, and in some cases there is a blanching indicating that there is at times a small amount of natural antitoxin in the normal horse. This is not surprising since the horse is subject to streptococcal affections and also to immunity of some kind. The whole question, added Dr. Mair, is of great interest from the point of view of the ætiology of scarlet fever.

Dr. W. M. Macfarlane, Birmingham City Hospitals, stated that he has used the Schultz-Charlton reaction with very satisfactory results and has also given convalescent serum in many cases. With various sera the reaction usually persisted until the rash faded, whilst with convalescent serum it certainly did so in all cases. The batches of sera varied. In some instances blanching was produced in 18 hours with 1/1000 dilution, and in others in six hours with 1/10 dilution.

Dr. D. MacIntyre, medical superintendent, Plaistow Fever Hospital, said that he has had difficulty in getting 1 c.cm. into the skin. The majority of cases arrive at his hospital after the third day.

The President said that from the clinical point of view he considered the Schultz-Charlton reaction a very promising one. It had helped in diagnosis on several occasions in his own experience, and had been of great value in cases in which there was doubt. He agreed with Dr. O'Brien that it would probably be of advantage to increase the dose, and said that he understood that when Dr. Mair was doing tests with 0·75 c.cm. there had been practically no inconvenience to the patients. Mentioning one or two cases in which the blanching lasted some two days after the rash had gone, he said that this was accounted for by the exceptional whiteness of the skin; no desquamation followed in the particular area that had been blanched. Though this phenomenon did not occur in all cases it might occasionally be encountered.

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# ROYAL ACADEMY OF MEDICINE IN IRELAND.

## SECTION OF OBSTETRICS.

A meeting of this Section was held on Dec. 18th last, Dr. D. G. Madill, the President, being in the chair.

### *Hyperemesis in Early Pregnancy.*

Dr. Gibbon FitzGibbon, Master of the Rotunda Hospital, read a paper on this subject.

The President said that reflex hyperemesis was understood to be due to some pelvic lesion, but he had not a great deal of faith in reflex hyperemesis, except in cases of erosion which were being treated and in which actual manipulation of the cervix might produce it. Even in non-pregnant cases manipulation of the cervix would produce vomiting if it was continued for long enough. He was not a great believer in neurotic vomiting, as plenty of neurotic patients went through pregnancy without any hyperemesis. Personally, he thought that about 90 per cent. of cases of hyperemesis in early pregnancy were toxic. In cases of reflex or neurotic hyperemesis no such post-mortem lesions in the liver and kidneys were found as were seen in cases of extreme hyperemesis in the later months of pregnancy. Hyperemesis ended at about the end of the fourth month of pregnancy—the time when the action of the trophoblast was most severe—and he was of opinion that if a patient got over the fourth month she would get through all right. In all these cases blood and urinary examinations should be made. In early cases of severe morning sickness he put the patients on a milk diet and purgatives, and every time they drank milk, or even milk and soda, he made them lie down for an hour afterwards; by doing this they were much more likely to retain food. He kept them on this régime for a month, and then if they were better he stopped it; but if they were not better he put them on complete starvation and elimination. He found in these cases that doses of glucose and bicarbonate of soda were effective. Before he emptied the uterus he would try giving the patient corpus luteum extract. If hyperemesis was due to migration of chorionic villi injections of placental extract might help. Obstruction of the bowels was, he thought, a predominant factor in most cases.

### *Neurosis or Toxæmia.*

Dr. L. Cassidy said that he did not agree with the President that obstruction of the bowels was a predominant factor in hyperemesis. If it were so, hyperemesis would surely be much more common, since constipation was very usual in pregnancy. In the case of a girl aged 24, who had vomited continuously for three weeks and was in a very bad state, a rectal enema was given, and sodium bicarbonate, and three bougies were passed without any effect. After this Cæsarean section was done, and the patient never vomited afterwards. In cases of this kind it was rather difficult to put toxæmia out of mind. Acidosis was present in most cases, but this would be found in any case of starvation. He was of opinion that there was a neurotic element in a large number of cases of hyperemesis. He thought that Dr. FitzGibbon's experience of two fatal cases must be unusual, as he had recently read a report on a German authority who had treated thousands of such cases and had had very few deaths. A certain number of women were very desirous of terminating pregnancy and would adopt any means to bring it to an end short of inducing abortion by physical means. Referring to the fact that hyperemesis only occurred up to the fourth month of pregnancy, he said that he thought there was little doubt that a certain number of these cases might be due to inability of the maternal tissues to deal with the products which they contained. It was possible that some dysfunction of the corpus luteum might also be responsible for causing sickness.

### *Importance of Misplacement.*

Dr. J. S. Quin said that he quite agreed with Dr. FitzGibbon about the neurotic element in cases of hyperemesis, and thought that the strongest argument in favour of this was the extraordinary variety of methods of treatment which were brought forward, all of which had good results. In a condition which was cured by so many diverse methods of treatment he thought it was fair to assume that they all acted by suggestion. The essential thing in treating all these patients was to remove them from their immediate surroundings. In these cases he believed that often there was misplacement, and when a patient complained of vomiting the first thing to be done was to make sure that this was not the cause.

Dr. D. Cannon, referring to the fact that hyperemesis was supposed to be due to starvation and dehydration, said that if this were true he did not see what good emptying the uterus would do.

Dr. A. H. Davidson said that recently it had been suggested that blood serum from a normal pregnant woman should be given to women suffering from hyperemesis.

Dr. FitzGibbon, in replying, said that he had no doubt about reflex hyperemesis being present in the early months of pregnancy. Erosion as a cause in such cases was absurd. In nine cases out of ten the cause of the hyperemesis was retroversion. Neurotic vomiting invariably ceased at the fourth month, when the uterus ceased to be a pelvic organ and began to be an abdominal organ. He did not at all advocate emptying of the uterus as a cure for cases of hyperemesis. He believed that the death of one of his patients was due to starvation, which was so far advanced that he could not relieve it. Vomiting in early pregnancy was, he thought, nearly always neurotic. Sometimes hyperemesis was associated with hydatid moles, but in his first two years at the Rotunda Hospital he had had a good many of these cases and did not think that any of them were associated with vomiting of which notice would be taken. Acidosis in these cases was, he believed, the result of tissue wasting, from starvation. His second fatal case was one in which he had induced labour. It was said that chloroform was the cause of tissue or liver degeneration, but he had given both chloroform and ether in toxæmic conditions without any bad effect.

### *Ovarian Dermoid in a Child.*

Dr. CANNON showed an ovarian dermoid removed from a child aged 9 years, which had produced acute vomiting, some fever, and tenderness and rigidity of the lower abdomen. A tumour was felt and a pre-operative diagnosis of ovarian cyst was made. The abdomen was opened, and a tumour found occupying most of the pelvis, the left lobe of which was congested and red. There was no blood-stained fluid and no torsion, and a small pedicle. The other ovary was normal.

The PRESIDENT said that this was a very rare and interesting specimen. It was, he thought, idle to speculate about the origin of dermoids; but it was known that they occurred at all ages and in both sexes, sometimes up to 70 years of age, as well as in unborn children. They were generally painless, but had a great tendency to become malignant, even in young patients. It was interesting to note that one piece of the ovary was left perfectly healthy in the tumour.

Dr. FITZGIBBON said that he had never seen a case of this sort in a child as young as 9 years; the tumour was very large to be found in so young a patient. The combination of a multilocular cyst and the dermoid was very interesting, as it showed that there was another definite pathological growth in the ovary as well as the dermoid.

Dr. CANNON, in replying, drew attention to the similarity between cases of ovarian cyst and of abdominal tuberculosis, and referred to a patient he had recently seen who had been treated for abdominal tuberculosis till breathing became difficult, and at operation had been found to have an ovarian cyst under the liver

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# Reviews and Notices of Books.

## RESPIRATION IN DISEASE.

*Respiratory Function in Disease.* By JONATHAN C. MEAKINS, M.D., C.M. M'Gill, F.R.C.P., F.R.S. Edin., Professor of Medicine, M'Gill University, Physician in Chief to the Royal Victoria Hospital, Montreal; formerly Christison Professor of Therapeutics in the University of Edinburgh; and H. WHITRIDGE DAVIES, M.B., B.S. Adelaide, Lecturer in Methods of Clinical Investigation in the Department of Therapeutics, University of Edinburgh. London and Edinburgh: Oliver and Boyd 1925. Pp. 402. 28*s*.

THIS should become a standard work on respiration in disease. In some ways it may be regarded as the companion to Prof. J. S. Haldane's lectures on Respiration which have been recently published in book form.

After a historical résumé, a section on normal respiratory function gives in a very readable form a short, succinct description of the physiology of respiration, including all the recent work. An account of hæmo-respiratory function in disease, which occupies about half of the book, is especially valuable as it contains not only the authors' views on the various disputed points clearly expressed, but embodies much of their own experimental work as well as that of others. In a chapter on vital capacity in disease the authors hold the same view as some other investigators—viz., that the vital capacity in health shows considerable variations, so that it cannot be safely used as a standard of physical fitness or as a means of diagnosis in individual cases of pulmonary tuberculosis. There is a short chapter on the basal metabolic rate. A further chapter on the therapeutics of respiratory disturbances throws doubt on the action of the ordinary so-called respiratory stimulants. The methods of oxygen administration are clearly described and analyses are given showing the relative advantages of the different methods. Emphasis is laid on the importance of administering $CO_2$ as well as oxygen in the treatment of poisoning by morphia and carbon monoxide. The book is completed with a valuable chapter on methods of investigation. There is an exhaustive bibliography which contains some 400 references.

Such a book, dealing with a subject in which knowledge is advancing almost daily, will certainly require further editions at not too long intervals of time. It is on this account that the following suggestions on matters of detail are made. The authors infer that the radiogram of the heart shows its contour during systole, but surely this is only the case if a carefully timed and momentary exposure is employed. The ordinary ortho-diagram of the heart, taken with an exposure of some seconds, is usually regarded as representing the heart's shadow in diastole. Whilst it is probably true that bronchitis by itself is not a cause of breathlessness, the authors attribute the breathlessness so common in chronic bronchitis to emphysema, though it would seem at least equally likely that coexisting asthma is responsible. The fact that they quote with approval the statement that in emphysema the prolonged expiratory sound is characteristic, suggests that they have neglected the asthmatic element in their cases, for it is usually held that in pure emphysema the breath sounds are diminished and that it is only when asthma is present that the expiration becomes prolonged. The very small section devoted to the blood changes in congenital heart disease might well be further expanded. The authors do not give enough credit to Pembrey and Allen who gave us all our present knowledge of pathological Cheyne-Stokes respiration. Douglas and Haldane repeated their observations on Cheyne-Stokes breathing artificially produced. The headings of the pages have not been varied sufficiently, so that between pp. 92 and 233 it is impossible to find out at a glance what particular hæmo-respiratory function is being dealt with. Finally, in a future edition it would perhaps be better to incorporate the frequent footnotes in the text.

The excellent way in which the data are presented makes it possible for the reader to draw his own conclusions, which is very necessary in a subject developing so rapidly. The work should be useful alike to the advanced student, the research worker, and the general physician, and is thoroughly to be recommended.

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*Dyspnœa.* Medicine Monographs. Vol. V. By JAMES HOWARD MEANS, Harvard Medical School. London: Baillière, Tindall and Cox; Baltimore: Williams and Wilkins Company. Pp. 108. 11*s*. 6*d*.

PROF. MEANS has written an excellent short account of dyspnœa in the present book. The matter is well arranged and the arguments are clearly expressed. About two-thirds of the book deal with the causes of dyspnœa in disease, which are classified under the headings: Dyspnœa associated primarily with Increased Metabolism; Dyspnœa associated primarily with Disturbance of Acid Base Balance; Dyspnœa associated primarily with Difficulty in Oxygen Transport; and Dyspnœa associated with Mechanical and Nervous Hindrances to the Respiratory Movements. In this section there is a discussion on reduced vital capacity. Then follow sections on cardiac dyspnœa and on dyspnœa in pneumonia. The early part of the book is devoted to the physiological aspect of the subject, whilst the last chapter deals with treatment. There is an excellent bibliography, and the book can be recommended as a short readable account of recent work.

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### THREE SURGICAL MONOGRAPHS.

Edited by DEAN LEWIS, A.B., M.D., EUGENE H. POOL, A.B., M.D., and ARTHUR W. ELTING, A.B., M.D. London and New York: D. Appleton and Co. 1925. Each 21*s*.

1. *Peritonitis*. By J. GARLAND SHERRILL, M.D., F.A.C.S., Colonel M.O.R.C., U.S. Army, formerly Professor of Surgery, Kentucky University and also of the University of Louisville. Pp. 397.

THE series of surgical monographs, of which this is one, published under the editorship of three distinguished American surgeons, bids fair to fulfil admirably the objects which the editors have had in view. They have wisely chosen such subjects as visceroptosis and diseases of the spleen, of which the literature, though extensive, is scattered and sometimes difficult of access. A great service has been done by the presentation of comprehensive reviews of these debatable provinces of surgery. Future workers will have not only a basis of knowledge from which to start out, but they will gain from the experience of an authoritative writer. The present volume on peritonitis conforms to the general plan of these monographs, but does not quite reach the high standard of its predecessors. The book is too large for the subject, so that a number of irrelevant matters are dealt with, or at least subjects such as cholecystography and the treatment of uncomplicated gastric ulcers, which have but a slender connexion with peritonitis. On the other hand, when we seek information about Ochsner's method of treatment, or proctoclysis or laparoscopy, we do not find the details which we might expect in a monograph of this size. The author's experience of perforated gastric ulcers is peculiar. He declares that perforation takes place mostly on the posterior wall and that the exudate is more or less limited to the lesser peritoneal sac. He ends by saying "the lesser curvature or the anterior wall may be the site of perforation in a small number of instances." Only nine lines are devoted to the surgical treatment of peritonitis from ruptured gastric ulcer in this section, though the treatment of uncomplicated gastric ulcer occupies nearly three pages. The author is at his best when he speaks of his own experience. He has been impressed with the results of gastric lavage in peritonitis, which have forced him to conclude that much of the toxæmia in grave cases is due to absorption from the lumen of the alimentary canal.

There is much useful information within the covers of this book, and a good bibliography is attached to each chapter.

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2. *Fractures of the Humerus, Radius, and Ulna.* By E. L. ELIASON, A.B., M.D., ScD., F.A.C.S., Professor of Clinical Surgery in the University of Pennsylvania Medical School. *With the collaboration of* R. GOLDSMITH, M.D., Instructor in Surgery in the same Medical School, and E. P. PENDERGRASS, M.D., Instructor of Radiology, Post-Graduate School of Medicine, University of Pennsylvania. Pp. 307.

THE literature dealing with fractures is already immense, but the vast proportion of it was written prior to the adoption of numerous X ray improvements, and it is principally for this reason that this volume has been prepared. Although it is now many years since the X rays first entered seriously into practical surgery, yet of recent years the improvement in apparatus and in technique has been so great that the diagnosis and the control of fractures have reached something of finality. The fine focusing tube, the duplitised film, the high-power tubes of the Coolidge type, and stereoscopic photography are examples of this great advance in equipment. The first part of the volume deals with the normal anatomy of the three bones with an extensive series of radiographs illustrating the progress of bone formation through the years of growth. There follows excellent advice on the duties of the radiologist, the general rules governing the radiological examination, and the indications which control the necessity for rontgen photography. A short general review is given of the symptomatology, examination, treatment, complications, and sequelæ of fractures of the upper extremity. This section contains in outline form some of that common-sense information which many students consider so elementary as to be beneath their notice; yet it forms the basis of the successful intercourse between doctor and patient. The fractures of the upper end and shaft of the humerus are well dealt with and the recommendations for treatment show little difference from that commonly accepted in this country. The section on fractures at the elbow-joint is full of interest, and the author's results in this class of case seem unusually good. The method of hyperflexion and complete supination after perfect reduction insisted upon here was taught originally by Sir Robert Jones; but in the original description of Jones's method the hand was suspended by the wrist by a band around the neck, which destroys the complete degree of supination. Eliason has noted this and recommends that the limb should be maintained in plaster-of-Paris in a very useful manner. The chapters on the radius and ulna are well done, but exclude Colles's fracture as this is dealt with in a separate volume in the series by another author. The book ends with chapters on the treatment of compound fractures and of delayed and non-union. There are 303 illustrations. The book is well presented, and forms a valuable addition to the literature of this subject.

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3. *Traumatic Injuries of the Carpus.* By KELLOGG SPEED, M.D., Assistant Professor of Clinical Surgery, Rush Medical College of the University of Chicago. Pp. 197.

THIS is a companion volume to the one reviewed above, and it contains the fractures at the lower end of the radius as well as those of the carpus itself, Colles's fracture being omitted from the other work—an arrangement which makes the title of this volume inappropriate. The anatomy of the wrist-joint is adequately dealt with, and the radiographic and descriptive presentation of the morbid pathology is good, but the section on treatment is disappointing. As a general rule, the Colles's fracture is badly treated for the reason that the fractured ends are not disimpacted. Until this is done any attempt at reduction must be futile. The description on p. 47 of this book in no way emphasises this important point. The only other reason for bad function after reduction is that the radial deviation of the lower fragment is allowed to persist. This is not recognised by Dr. Speed, and it is definitely laid down that there is no need to put up the hand in the ulnar deviated position. Apart from this, the treatment advocated is the maintenance of the wrist and hand in flexion upon a plaster splint. This method, especially when combined with ulnar deviation, gives results greatly superior to the old methods of Carr's and similar splints.

The second part of the book is much better in every way than the first. The description of the fractured scaphoid and dislocated semilunar are admirable. There are 164 illustrations, many of them simple line drawings. We fail to understand why the price of this book is the same as Prof. Eliason's, which has nearly twice as many pages and illustrations.

# MEDICINE AND THE LAW.

### *Evidence or Opinions Reflecting upon Absent Practitioner: Want of Legal Remedy.*

THE recent suicide of a young barrister at Stoke Newington received additional publicity because his death was believed to have followed psycho-analysis. According to the report in the *Times*, the coroner for Central Middlesex, giving evidence as an old friend of the family of the deceased, stated his belief that there were cases in which psycho-analysis would do good, but that in the majority of cases, and especially in such a case as this, it did harm. The coroner for Hackney, who was holding the inquest, subsequently observed to the witness, "Obviously psycho-analysis can come up against people who are suicidal, and who would in any case commit suicide; having allowed for possible usefulness in some cases, you say that psycho-analysis is sometimes a danger?" Whereto the witness replied: "It can be a very dangerous weapon." These general statements were moderate enough, but the witness also gave his opinion that the cause of the condition of the deceased was the psycho-analytical treatment he had received. From this and other comments the public would not unnaturally infer that the system of treatment is discredited and that the practitioner who administered it made at least a grave error of judgment. It therefore seems unfortunate that this practitioner was not offered an opportunity of giving evidence in defence and explanation of the treatment he administered. One can imagine cases, containing perhaps more serious and specific allegations, where a doctor's reputation might be gravely prejudiced by *ex parte* statements to which he had no chance of reply. It will probably surprise the medical profession to find how little legal remedy the practitioner has in such a contingency. The matter, indeed, is not so much one of law as of practice. As a matter of law a coroner has wide latitude in conducting his inquisition. He can call whatever witnesses he thinks may help the object of his investigation. They may wander unchecked into matters of hearsay or of personal opinion. The coroner is not confined by the rigid rules of evidence and relevancy which fetter other courts, for he is holding an inquiry and not a trial. He is collecting facts which may lead to criminal proceedings, but he is not arraigning an accused person upon a formal indictment. If he exclude hearsay evidence or vague expressions of opinion on the ground that a judge trying a prisoner at assizes would rule such matters out, then he may be rejecting some valuable clue; in the familiar words ascribed to Mr. Justice Wills in the Crewe murder trial some 30 years ago, he may be throwing away much of the remaining usefulness of the coroner's inquest. But, if free from the restrictions of a judge, the coroner has a judge's privileges. He cannot be sued for what he says or does in the exercise of his judicial functions, unless, indeed, he acts in excess of his jurisdiction. No slander action will lie against him for his summing-up. His inquest might be quashed if there were a miscarriage of justice as a result of excluding evidence which might have thrown light on the matter; but interference of this kind is rare and the justification for it seldom arises. Criticism of the conduct or qualifications of a man who may not himself be a party to the proceedings before a court is one of the hardships of all English procedure. In an action between A and B, or in a criminal prosecution of C, the most venomous evidence may be given and the severest forensic and judicial observations may be made against X, and yet X may have no right whatever to intervene in his own defence. It is common knowledge that in many cases of fraud or violence the defendant tries to throw the blame on someone else, often on someone not before the court. Counsel may be present to hold a watching brief for the person thus attacked, but the judge cannot be compelled to hear counsel on his behalf and, indeed, frequently refuses to do so. With his less restricted powers the coroner can be more generous. The judge is bound to confine the proceedings to prescribed issues narrowed down to the smallest compass; the coroner is not. It would therefore be a welcome procedure if it were made an invariable rule at inquests that, where a medical practitioner is directly or indirectly criticised, adequate opportunity should be given him to explain or defend himself. In the High Court of Parliament there is an excellent and honoured tradition that, if a member is to be attacked, he should have notice so that he may be present to reply. A similar tradition might well be encouraged in other courts. The circumstances are different, but the principle of fair play is the same.

### *Action for Fees: Unsuccessful Defence of Professional Negligence.*

Professional negligence is a sufficient defence to a claim by a practitioner for professional fees. But, as Lord Halsbury's "Laws of England" pointed out, the patient cannot evade the payment of fees merely by saying that the treatment was ineffective or mistaken, unless the mistaken treatment is the result of ignorance or negligence. And it is not negligence for a doctor to give an opinion which is afterwards found to be wrong, provided that the opinion was not given negligently. This principle of law is illustrated by a recent case in the Harrogate county court, in which Dr. James N. Todd sued Mr. R. S. Wigan, a retired solicitor, for 14 guineas for professional services rendered. The defence was an allegation of incompetence and erroneous diagnosis. The county court judge awarded Dr. Todd the full amount of his claim and special costs. From the report of the case in the *Yorkshire Observer* it appears that the defendant did not dispute the amount of the fees, but contended that the plaintiff had displayed a want of competent and ordinary care and skill in successively diagnosing several diseases. It was stated that Dr. Todd had been called in to the defendant in March, 1921, when he diagnosed blood pressure; on the following day, it was said, he diagnosed jaundice; afterwards he said he feared cancer, and at a later date he suggested diabetes. These statements, on behalf of the defence, were combated by the plaintiff. Mr. Herbert Frankling, a surgeon of Harrogate, and Mr. L. R. Braithwaite, a surgeon of Leeds, gave evidence on behalf of Dr. Todd, and there were other medical witnesses. In giving judgment his honour Judge A. W. McCarthy said he could not find a single trace of negligence on the part of Dr. Todd. All that was required of a professional man such as the plaintiff was that he should bring to his work reasonable skill and competence. The law did not require that a professional man should always be right. That would be impossible. In his diagnosis Dr. Todd was apparently correct. He was satisfied that there was cancer but he apparently expressed his opinion in rather too dramatic a manner. There was, however, nothing unprofessional in that. The learned judge concluded by stating categorically that there was not the slightest justification for saying that Dr Todd had shown any want of ordinary skill or competence in treating the defendant, and there was no foundation whatever for the allegations made against him.

### *Silicosis and the Coal-Miner.*

The case of Williams *v.* Guest Keen and Nettlefold, Ltd., recently decided in the Court of Appeal, reveals a curious gap in our system of workmen's compensation. Absalom Williams, a coal-miner, had for years been operating a coal-boring machine worked by compressed air. In June, 1922, his lungs became affected and he had to give up his work. In 1923 he resumed it; subsequently he broke it off again and again returned to it, and in April, 1925, he was totally incapacitated, the inhalation of dust particles over a period of years having brought on silicosis. Now a slow and cumulative disease of this kind is not regarded by the law as "personal injury by accident" within the meaning of the Workmen's Compensation Acts. Some industrial diseases of a gradual nature (lead poisoning, for instance) have, it is true, been scheduled as legally equivalent to "personal injury by accident" in certain specified trades; but silicosis is not one of them. All that Parliament has said about silicosis is that provision may be made by the Home Office scheme for compensating workers suffering therefrom in particular industries. Such a scheme was duly made for what are called the refractories industries (i.e., mines, quarries, factories, or workshops where refractory material containing not less than 80 per cent. of silica is got or manipulated), but it does not extend to coal-mining. The result is that, though there are three different ways in which a workman can obtain compensation—for a personal injury due to accident, or for a scheduled industrial disease, or under the Home Office silicosis scheme—the coal-miner who contracts silicosis in the course of his employment cannot avail himself of any of them.

The decision of the Court of Appeal merely confirms what was already known to be the law. In 1905 (Steel *v.* Cammell Laird and Co.) a ship-caulker whose task it was to smear red and white lead upon rope yarn and to work it in with his hands, gradually accumulated lead in his system until he became partially paralysed and incapable of work. This occurred before lead poisoning had been scheduled as an industrial disease, and the law courts held that a disability which came so gradually upon its victim could not be personal injury by accident. Though there was a day when he was suddenly seized with cramp in the hands, it was not thought possible to indicate a moment at which there was an accident which caused his injury. The law thus laid down was held to preclude Williams from recovering compensation in the recent case mentioned above. That a disease may be the result of an injury caused by an accident was admitted many years ago in Brintons, Ltd. *v.* Turvey, where a woolsorter was infected with anthrax and died within a week. Lord Halsbury then said that if a tack or some poisoned substance cut a workman's skin and set up tetanus, it would obviously be an accident even though tetanus is a disease. Similarly, if some corrosive acid were spilt over the workman's hands and set up erysipelas, it would be an accident. And so the House of Lords held (Lord Robertson dissenting) that the anthrax was caused by an accident or, as Lord Macnaghten said, a chapter of accidents. More recently in 1921, in Charles Burrell and Sons *v.* Selvage, where a workman had suffered for months from cuts and scratches and the cuts became septic, the consequent total incapacity was held to be an accident within the meaning of the Acts, though no one of the series of minor accidents could be identified as the cause of the incapacity. But the silicosis of Williams was due to no such causative accident in the eyes of the law, and this unfortunate coal-miner has had no legal remedy.

### *The Coroners' Bill and Deaths under Anæsthetics.*

At an inquest lately held upon the body of a man who died under an anæsthetic in hospital, the coroner for the City of London commented upon the omission from the Coroners' Bill of any specific provision for inquiry into such cases. Dr. F. J. Waldo stated that he had reason to believe that many such deaths occurred in private houses and nursing homes and were not reported to the coroner. The Coroners' Society, he added, had long ago come to the conclusion that no death resulting from the use of an anæsthetic, for whatever purpose administered, should be certified as a natural death, but that it should be the duty of every householder or occupier upon whose premises such a death occurred to give immediate information to the coroner or his officer. One of the first clauses in the draft consolidating and amending Bill printed and published by the Coroners' Society in 1913 was a provision for compulsory notification to the coroner of all such deaths; such a reform, said Dr. Waldo, would lead to an improvement in the collection of statistics which at present are often useless and misleading.

The Coroners' Society's draft Bill of 1913 undoubtedly contained much that was useful and well considered. If it was not wholly acceptable in official quarters, the reason may be that the clauses relating to coroners' status and emoluments were thought to be too optimistically conceived. In any case the Government Bill, withdrawn at the end of last session but likely to be passed into law this year, at present holds the field. It is true that it does not contain the particular reform which Dr. Waldo advocates, but there is so much of value in the Bill that it seems almost ungrateful to ask for more. The proposed abolition of franchise coroners, the substitution of a uniform system of annual remuneration for payment by inquest, the power to adjourn inquests pending the conclusion of a murder charge and to discontinue the inquiry if the result of the criminal proceedings justifies that course—these are reasonable reforms which were overdue. Other fresh features of importance recommend themselves—the newly-framed power to summon medical experts (though it is not quite clear what will happen if several coroners desire the attendance of our chief experts on the same day), the machinery for holding a single inquest where several deaths, due to one and the same accident, occur in the jurisdiction of different coroners, the power to hold an inquest though the body is destroyed or irrecoverable, the cautious provision for taking a majority verdict from the jury, and the removal of the absolute obligation that the jury should view the body, a duty which is seldom necessary save where there are wounds which raise the question whether the injury is self-inflicted or not. While we should be sorry to see the success of so useful a Bill jeopardised by too much criticism, Dr. Waldo is right, of course, to insist upon the importance of obtaining all possible information as to the effect of the different anæsthetics. Useful statistical results might follow the properly coördinated administration of that clause in the Bill which empowers post-mortem examination where there is sudden death from a cause unknown and where the coroner thinks a port-mortem might prove an inquest unnecessary. But this clause does not meet the case of deaths under anæsthetics. A proposal which might have the effect which Dr. Waldo desires has been discussed from time to time, but is understood to lack the support of the Coroners' Society. It is that the coroners should nominate a panel of acknowledged experts in physiology whose services would be available for investigating all cases of deaths under anæsthetics in hospitals, provision being made that no expert should be asked to investigate a death at his own hospital. Such a plan would provide the statistical data which we require. Certainly it would in most cases render an inquest unnecessary.

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HOME FOR PATIENTS WITH FUNCTIONAL NERVOUS DISORDERS.—Caldecote Hall, near Nuneaton, was recently opened as a home for certain types of functional nervous disorders under the auspices of the Church of England Temperance Society. Caldecote Hall, a fine modern Jacobean house, succeeds an older building which was besieged and taken, under romantic circumstances, by Prince Rupert in 1642. The cases taken include drug addicts and inebriates and those with suicidal tendencies and so forth. Fifty beds are at present available and it is proposed later to increase the accommodation to 100. The terms vary, according to bedroom accommodation, from 3 to 12 guineas weekly. A "poor patients" fund exists in order to help those who have small means to enjoy the benefits of the home, which is run on the lines of a country club by a committee of the patients themselves. A canteen is provided, working on a token system, the profits from which are devoted to the sports fund. Tennis, croquet, and bowls are available out of doors and billiards indoors. Sir William Willcox and Sir James Purves-Stewart are consulting physicians. Further particulars can be obtained from the R.M.O., Dr. Alfred Carver, at Caldecote Hall, near Nuneaton, or from the Secretary, at 40, Marsham-street, London, S.W. 1.

# THE LANCET.

*LONDON: SATURDAY, JANUARY 9, 1926.*

## THE EFFECTS OF CORONARY OCCLUSION.

IN these days, when the chief advances in medicine come from the laboratory or from the application of experimental methods, it is of some interest to record a noteworthy advance in clinical descriptive medicine. We are so prone to regard the fields of clinical observation and of pathological anatomy as fully charted, that it comes almost as a surprise to find that we have had before us a more or less clear-cut syndrome due to a definite acute pathological accident, which is not generally recognised clinically and which is actually not accurately described in the majority of current text-books. That angina pectoris can be associated with disease of the coronary arteries has been known since the observations of EDWARD JENNER, who found this condition at the autopsy of his friend, JOHN HUNTER. That sudden obstruction of the coronary arteries, or of one of their principal branches, is a frequent cause of sudden death is a commonplace of the coroners' courts. It is also well known that obstruction, either sudden or gradual, of a branch of the coronary artery can produce pathological changes in the cardiac wall varying from ischæmic necrosis to fibroid substitution according to the stage. It is less common knowledge that such obstruction can produce a series of symptoms which enable it to be recognised with some degree of certainty.

In the October number of the *Quarterly Journal of Medicine* there is a paper by Dr. J. W. MCNEE giving a clear account of the clinical syndrome of coronary thrombosis, based on three cases seen at the Johns Hopkins Hospital, Baltimore. This paper deserves careful study. Dr. MCNEE points out that the condition has received special recognition in the United States of America, and refers to a considerable literature concerning it. He maintains that the main clinical features are agonising pain lasting longer than the pain of similar character occurring in angina pectoris. It is probable that the condition hitherto described as "status anginosus" is of this character and owns this causation. The distribution of the pain is often anomalous, and may give rise to the suspicion of perforated gastric or duodenal ulcer, cholelithiasis, or acute pancreatitis. A peculiar colour and appearance of the face is described—*namely*, an earthy colour with definite though slight cyanosis. As might be anticipated, coronary thrombosis is immediately followed by signs of acute heart failure, with the indications of cardiac embarrassment and the signs of pulmonary, hepatic and renal engorgement. A localised pericardial friction in association with these clinical manifestations is pathognomonic, but is not constant and may be extremely evanescent. Fever and some degree of leucocytosis are always present, and some abnormalities in the electrocardiographic records are common, but not characteristic.

Two important papers have appeared in recent issues of THE LANCET dealing with the same subject, supplementing in a useful and noteworthy fashion the observations recorded by Dr. MCNEE. It is of some interest to note in this connexion that one of the earliest if not the first observations on this subject, from the pathological point of view, was published in our columns as long ago as 1887 by Dr. J. L. STEVEN, of Glasgow. In the first of the two recent papers Dr. A. G. GIBSON, of Oxford, critically examines the symptoms recorded in some 43 cases, including some observed by himself; he also includes brief descriptions of cases under the care of Dr. JOHN COWAN, Prof. F. R. FRASER, and Dr. K. D. WILKINSON. Dr. GIBSON's observations in the main confirm those of Dr. MCNEE and the American observers, but he also includes the more severe cases in which sudden death or rapid cardiac failure occurs. In addition to the localised pericarditis, which so frequently occurs, he points out that clot often forms on the endocardial side of the ischæmic or necrotic area, leading not infrequently to embolic phenomena. He goes so far as to state that in old people chronic cardiac failure complicated by aseptic embolism makes the diagnosis of *ischæmic necrosis practically certain*. Another result to which he refers is weakening of the heart wall to such an extent that rupture occurs. Dr. GIBSON refers to the pulse in ischæmic necrosis. He mentions that Sir JAMES MACKENZIE noticed pulsus alternans in two of his cases. Auricular fibrillation has also been observed. He suggests that a recent paper by COWAN and BRAMWELL[1] seems to indicate that bundle branch block may frequently be present in these lesions. The other paper, published in our issue of Jan. 2nd by Dr. CAREY F. COOMBS and Dr. GEOFFREY HADFIELD, is noteworthy, not only for the admirable coloured plate with which it is illustrated, but also for the useful classification of the clinical types observed as a result of coronary occlusion. They group these under three heads, viz.: First, cases with acute ventricular failure, corresponding closely to the syndrome described by Dr. MCNEE and the American physicians; second, those with chronic cardiac failure; and third, cases with unrecognised symptoms dying before diagnosis is established. Dr. GIBSON, in his useful comments on the cases studied by him, suggests that there still remains an enormous field for study in these cases, particularly in regard to the correlation of symptoms with special anatomical lesions. He states that attempts to deduce the site of the lesion from the symptoms have proved unreliable, and further, that there appears to be no relation between the size of the lesion and the severity of the symptoms, a somewhat surprising statement.

It is to be hoped that the clear accounts given by these various observers will serve to direct more general attention to this interesting and important condition. Dr. G. KLIONSKY's note on p. 74 is an earnest of what may be expected.

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## THE BRITISH PHARMACOPŒIA.

A PROFESSOR and learned physician who was placed on a committee to make suggestions for the revision of the British Pharmacopœia, gave good help in this task, for he had a great experience in the action of drugs, but he confessed that he had never seen a copy of the work. That is a story which bears exact relation to one of the difficulties which the General Medical Council at the present time is experiencing. The Pharmacopœia has the first sort of official backing, but it is not generally consulted by the practitioner, and many medicines that are in common use obtain no mention in its pages. Why had the professor not seen the book? The Medical Act of 1858 enacts that the General Medical Council shall cause to be published a book containing "a list of medicines and compounds, and the manner of preparing them, together with the true weights and measures, by which they are to be prepared and mixed." The term "a list of medicines" is vague enough, and leaves much to the discretion of the Council. It is generally accepted that only well-tried drugs and those whose exact composition can be defined shall be made official, and as each new Pharmacopœia comes round there is much talk as to which of the recent inventions shall be admitted, and which of the redundant ones shall be dropped. Additions and excisions have been carefully and skilfully accomplished, while, as far as the former are concerned, there are always many drugs of common use which, perhaps because they are not sufficiently tried, perhaps because more efficient ones have been invented, perhaps because their method of preparation is not exact enough, can find no place in the official list. Any list, however carefully compiled, would be open to criticism, and the British Pharmacopœia may be too exclusive, but this is a fault in the right direction.

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[1] Quarterly Journal of Medicine, October, 1925, p. 95.

Now, if to give, over a sufficiently wide range of material, the names of drugs and their doses were the sole object of the Pharmacopœia, it is probable that the official volume would be well known to doctors. The words, "manner of preparing" drugs and their compounds, however, introduce a different issue. The practitioner of 100 years ago prepared many of his own drugs himself, but his successor of to-day would be at a loss to prepare the simplest of his remedies, and instruction upon the matter is largely wasted upon him. His acquirement of pathological knowledge and of the experience which will give him skill in diagnosis, leaves no space in his curriculum to work at an art which can well be carried out by those whose curriculum is more specialised and not so long; in a shorter time they can make themselves more perfect than he can hope to do. It is ordained, and rightly we think, that this information as to how to prepare medicines and compounds should be published in the Pharmacopœia, for a public standard has to be maintained; but its inclusion makes the volume, though ultimately for the practitioner's use, something of an embarrassment to him. And when the information in the Pharmacopœia goes to fine extremes in securing the exact preparation and complete purity of the drugs with which it deals, much labour and wisdom are wasted if, by chance, certain of these drugs are not in common requirement. Because, therefore, the Pharmacopœia includes unnecessary matter as far as modern therapeutics are concerned, and because it is slow to adopt new remedies other works are found more acceptable by the profession, but even so the practitioner does use the British Pharmacopœia, even though individually he has never seen it, for these other works, whether by physician or pharmacist, are all based on it. The books omit much of the information as to the preparation of drugs with which it is lumbered, and add to it in other ways, one by showing the application of drugs, others by describing medicines which have not yet obtained their foothold in the national book or which are still only in their "proprietary" stage. It has been argued against the General Medical Council that its book is heavy and lifeless. We hope we have shown that this heaviness —in so far as it betokens accuracy—is a virtue rather than a vice.

Other troubles have arisen in the preparation of the new Pharmacopœia. It has been customary for the General Medical Council, at the time of the preparation of each edition, to invite the help of others to join in the preparation. Naturally, the most important invitation goes to the Council of the Pharmaceutical Society. Formerly the aid thus asked has been given. Now the Pharmaceutical Society, which certainly is able to supply a larger share of the knowledge required to make a Pharmacopœia than any medical body can do, objects to a mere invitation and claims its right to representation. The suggestion made by the General Medical Council to the Pharmaceutical Society was to set up, in the first place, a Pharmaceutical Advisory Committee, consisting of three members from each body with the President of the General Medical Council as chairman; and, in the second place, a Committee of Reference in Pharmacy, to be nominated wholly by the Pharmaceutical Society, to consist of expert pharmacists and to deal with questions bearing on pharmacopœial pharmacy. Both these committees were to be advisory, the General Medical Council reserving its freedom to adopt or disregard the advice and suggestions offered. The Pharmaceutical Society rejected this proposal, insisting on actual representation on the Pharmacopœia Committee as essential. In a letter to the Privy Council the Society expresses dissatisfaction at the present conditions of production, finding the intervals between successive editions of the Pharmacopœia too long, each edition being in some respects out of date when published, and the work of preparation inadequate. The Society reminds the Privy Council that one of the two editors of the 1914 edition was Prof. H. G. Greenish, dean of the Society's School, and the Privy Council is asked to give the Society, as in the case of the national pharmacopœias of other countries, some effective voice in deciding upon the methods and extent of pharmaceutical research to be undertaken in preparing the Pharmacopœia, and upon the extent to which the purely pharmaceutical matters in the Pharmacopœia require modification. It is the view of the Pharmaceutical Society that no legal obstacle exists to prevent the granting of such representation, and the Society requests the Privy Council to inquire what alteration of the law, if any, is needed in order to secure the preparation of future editions of the Pharmacopœia upon a satisfactory basis. The claim of the Pharmaceutical Society seems to us fair enough on general principles, for, as we have stated, bulk for bulk, a bigger share of the Pharmacopœia is pharmaceutical than medical. It must, however, be remembered that the General Medical Council works under the Act of 1858, and it appears to us that, if a change is to be made, it will depend on a change of constitution of the Council rather than on any internal action of the Council itself. It would seem wiser, if a change is to be made, to take steps as soon as a new pharmacopœia has been issued, rather than while one is in active preparation. The "Locarno" spirit will, at the present time, suit best these two branches of the art of healing which have of recent years been working so well together.

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## LABOUR PAINS.

Physiologists have much reason to be proud of their work during the last half century. Questions which never occurred to their forefathers have been faced and answered. On the other hand, some of the most familiar phenomena in human physiology are as perplexing now as they were at the dawn of medical science. One of the most striking of these is the process of labour. A child is born every minute, but no one has yet explained why the fœtus is expelled automatically at full term or the exact part played by the unstriped muscle of the uterus in the process. The pains of labour are proverbial, but no one has yet given a reason why this normal physiological process should be such a painful experience, why some pains are strong and others weak, and why the process of expulsion in a normal pelvis sometimes encounters overwhelming resistance and sometimes none at all. "Lieferung XX." of the new German text-book on gynæcology[1] contains 200 pages on the expulsive forces alone, contributed by Prof. HANS GUGGISBERG, of Berne, who expatiates on the experimental investigation of uterine activity, the results of artificial stimulation, the clinical aspect of pains, the various theories of the exciting agency of labour, weak and strong pains and their therapeutic control, and his treatise may be confidently referred to as an exhaustive and up-to-date study of the subject. But the student who hopes to extend his knowledge of the essential physiology of birth will find in it little to satisfy him, for whenever the scent freshens he comes up against a baffling wall in the author's conclusion that "in the present state of our knowledge we are unable to answer this question."

In discussing the reason for the painfulness of labour, Prof. GUGGISBERG compares the process to peristalsis, which becomes painful if it is resisted, and points out that the uterine muscle meets with more resistance in the performance of its function than any other muscle of the body. The pain varies largely with the state of the soft parts, and elderly primiparæ are on this account liable to severe labour, while patients with placenta prævia, whose soft parts are slack, may undergo several hours of labour before they feel pain. Other causes of pain are the pressure to which the pelvic organs are subjected and the stretching of the peritoneum incident to the uterine contractions. He contrasts human labour with that of animals, noting that in the former the cervix and vagina are passive, while in the latter the vagina plays an expulsive rôle. The chief function of the human vagina seems to be to expel the placenta. Animal experiments have thrown little light on the part played by the various nervous connexions; the uterus appears to have its own controlling ganglia and will function perfectly well even if its connexions with the cerebral, spinal, and sympathetic systems have been severed. The experiments give widely differing results not only in different animals of a species, but also in the same animal at different stages in the reproductive process. There seems no doubt that the contractions can be affected through the motor centres of the central nervous system, and anæmia of the brain can act as a stimulant, but this aspect has been very little investigated and has at present no therapeutic significance. Reflex stimulation—that, for instance, of a loaded alimentary tract or bladder—is well known to inhibit "pains," which can be also excited from the skin. GOTTLIEB showed that irritation of the intestine led to heightened blood pressure in the pelvis and reflex excitation of the uterus.

It is this autonomy of the uterus that has limited obstetric drugs to those which act directly on the uterine musculature, such as pituitary extract and quinine, but stimulation via the sympathetic and autonomic nerves may be of value under certain circumstances. SCHIFFER and KURDINOWSKI have demonstrated the rapid and efficacious action of adrenalin on the contractions, and the former has recommended its use therapeutically in conditions of hæmorrhage. Prof. GUGGISBERG thinks that it is indicated in atony with post-partum hæmorrhage and in Cæsarean section, in doses of 0·1 to 0·3 mg. directly injected into the body of the uterus. NEU observed a tonic contraction of the os after its administration, and for this reason and on account of the idiosyncrasy of some women to the drug it must be used with considerable caution. Prof. GUGGISBERG lays stress on the value of reassurance in primary inertia and urges the practitioner to be content to do nothing save comfort his patient. Vaginal examinations he strongly deprecates. His views on the use of pituitary extract, ergot, and quinine correspond with those commonly held in this country. Quinine is mild and hardly ever causes cramp or other bad results, but its uncertainty restricts its use to the second stage, when pains are weak, and to abortions. Ergot he thinks chiefly valuable during the period immediately following expulsion, especially when the muscular tone is bad, and prefers it to pituitary extract because it is milder. Combined with this extract it reduces bleeding in Cæsarean section to a minimum. Pituitary extract has the advantage of being a natural substance produced by the body itself and not a foreign introduction, and on the whole he does not regard it as dangerous

All this, however, has been said before, and the fact that a text-book of this magnitude has to confess ignorance on almost every page should act as a strong spur to investigators. Obstetricians are tending more and more nowadays to "leave everything to Nature," and if this clinical attitude is to be justified it would be as well to know a little more clearly the processes by which Nature works.

# Annotations.

"Ne quid nimis."

## THE NEW YEAR HONOURS.

THE list of New Year Honours, though short, contains a number of names representing various branches of the medical profession. Sir Robert Jones, who has become a baronet, is identified with recent progress in orthopædic surgery. Surgeon Vice-Admiral Joseph Chambers, who has been promoted to K.C.B., is the head of the Medical Department of the Navy. Dr. Robert Bolam, one of the new knights, is Chairman of Council of the British Medical Association. Lieut.-Colonel Frank Powell Connor, D.S.O., I.M.S., professor of surgery and surgeon to the Bengal College of Medicine, Calcutta, and Dr. Henry Alfred Alford Nicholls, lately P.M.O. to Dominica, Leeward Islands, have also received the honour of knighthood, while the C.I.E. has been conferred upon Lieut.-Colonel John Wallace Dick Megaw, I.M.S., Director of the School of Tropical Medicine and Hygiene, Calcutta, and upon Major Robert Henry Bott, I.M.S. Dr. Frederic Joune Willans, Surgeon Apothecary to H.M. Household at Sandringham and to the late Queen Alexandra, has been promoted to C.V.O. Dr. Jessie Carleton, of the American Presbyterian Mission, Ambala; Dr. Jessie Matilda Allyn, of the Canadian Baptist Telugu Mission, Pithapuram, Madras; and Dr. Charlotte Leighton Houlton, medical officer in charge of the Lady Reading Hospital for Women and Children at Simla, have received the Kaisar-i-Hind medal of the first class for public services in India. To all these recipients of well-merited honours we tender hearty congratulation in the name of the medical profession.

## REFORM OF THE POOR-LAW.

SINCE an Act of Queen Elizabeth directed that three or four substantial householders should act as overseers of the poor in every parish, the ultimate responsibility for the relief of the destitute has gradually passed, by way of Poor-law Commissioners and the Local Government Board, to rest at last in the Ministry of Health. Yet the local guardians elected to deal with their own parishes have survived the changes of 325 years. They have carried out their duties with more or less success, and it is only the growth of other machinery of local government, whose sphere of influence and work often overlaps that of the guardians, which has convinced most political leaders that the guardians themselves are obsolete. It is to be hoped that a measure of Poor-law reform will never be the subject of party bickering, and it is well that the Minister of Health should allow plenty of time for consideration of his new proposals by those concerned before pressing a Bill upon Parliament. These proposals will probably meet with the approval of theorists (who are often right), but they have already raised something of a storm in the parishes. The Minister's circular sums up his proposals in the following words:—

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[1] Biologie und Pathologie des Weibes. Ein Handbuch der Frauenheilkunde und Geburtshilfe. Josef Halban and Ludwig Seitz. Urban and Schwarzenberg. Berlin and Vienna. 1925 Pp. 1059. Die Wehen.

1. The coördination and improvement of the provision made for the prevention and treatment of ill-health, both institutionally and otherwise, and the inclusion in this provision of all public assistance required as the result of sickness, accident, and infirmity.

2. The coördination of all forms of public assistance, and especially an improved correlation between Poor-law relief and unemployment benefit.

3. The decentralisation of the responsibility at present falling on the Minister.

4. The simplification of the financial relations between the Ministry and the local authorities and the freeing of the local authorities from the financial restrictions in matters of comparative detail which are a necessary concomitant of the present system.

5. The correction of certain anomalies of historic origin, such as the association of the registration service (births, deaths, and marriages), with the provision for the relief of the poor.

The two main suggestions are that boards of guardians should be entirely abolished and that their functions should be transferred to the county councils and county borough councils. The county councils are to be the administrative units and are to be freed from central government control, as far as their health services are concerned, by receiving block grants of money which will supply their needs over a period of years and will enable them to deal with their own problems without frequent application to the Ministry for sanction of details. County councils will be entitled to delegate their new duties to borough and district councils, who will be expected to bear the cost of their own work but may receive additional grants from the counties. The assigned revenue system will be abolished, but local taxation licence duties at present levied by county councils and county borough councils will still be levied by them.

Critics of the proposals feel strongly that the county councils, whilst giving uniformity to the administration of relief in their areas, will lack the local and personal knowledge which boards of guardians have possessed. The councils, it is suggested, have already a vast amount of work to do, and the Minister's proposal that their membership should be enlarged to include ex-guardians who have special knowledge does not altogether meet the objection that the service of poor relief will lose a good deal of that voluntary work which is so valuable. It is feared that it will tend, unless checked, to fall largely into the hands of paid officials. The paid official is a necessary part of any scheme, but English tradition always—and rightly—prefers him as the servant of an elected and executive body which takes a continuous and unremitting interest in his work. It is the failure of a few elected bodies to do their work properly and with responsibility that has finally forced reform upon us after many years of vague discussion. The extension of the municipal franchise has placed power in the hands of the wage-earner rather than in those of the ratepayer, and it is intolerable, as the Minister implies, that the election of guardians should depend on how much they will offer to pay to the unemployed. The Minister evidently believes that by making poor relief a part of the functions of a larger body—the county council—he can abolish this abuse. His critics fear that the abuse will be transferred to the councils themselves, and that popular clamour for relief will rule these elections also.

Mr. Neville Chamberlain's plans for the future of the hospitals can conveniently be discussed at another time, but it may be mentioned that his memorandum suggests that the reforms ought to make the amenities of Poor-law medical institutions available and acceptable to all classes of the population. In many of them the facilities for treatment are excellent, and it is very desirable that they should no longer remain out of the reach of many sections of the community who either cannot or will not bring themselves within the scope of the Poor-law.

## PUBLIC TREATMENT OF TUBERCULOSIS.

With the New Year there came into operation an instruction of the Ministry of Health (Mem. 37/T) to all local authorities responsible for the treatment of cases of tuberculosis, by which it prescribes uniformity of records and statistical returns. As the Ministry pays half the expenditure of local authorities in treating cases of tuberculosis, it has some right to call the tune and to see that the public gets full value for the money it spends. The Ministry desires to know what progress tuberculosis schemes are making, what is the volume and character of the work being done, and what are the immediate and ultimate results of treatment under each scheme. With this end in view it requires the keeping of uniform records and the presentation annually of certain uniform statistical information. Such administrative control is no doubt inevitable, but the duty of furnishing the information which the Ministry requires, although the latter is stated to be reduced to a minimum, undoubtedly entails a considerable amount of extra clerical work for those in charge of tuberculosis dispensaries. The demand for uniformity in work may be expected to produce here, as it does in similar cases, some raising of the standard of work in the less efficient dispensaries and institutions, but it may at the same time hamper and discourage those who set up high standards of performance.

The memorandum has been incubating at the Ministry for several years and has been the subject of consultation between the Ministry's officers and tuberculosis workers of all branches. Though regarded by the latter as a disagreeable necessity, it has been moulded to reconcile as far as possible many divergent points of view. The basis of the uniformity aimed at is the new system of classifying patients suffering from tuberculosis which the Ministry imposes. This system, though stated to be purely tentative, pending agreement among clinicians on a better system, cuts right across all existing systems of classification, and renders statistical comparisons with previous years and other countries almost impossible. It is, therefore, all the more to be regretted that a new system should be put forward which itself shows defects so far as it applies to cases of pulmonary tuberculosis. In several respects it marks a considerable advance, notably in putting in two different classes cases in whose sputum tubercle bacilli have at some time or other been demonstrated and those in whose sputum they have never been found. Thus are separated the cases where there can be no doubt of the accuracy of the diagnosis from those in which there must always remain some doubt. The Ministry has done well also in laying emphasis on the degree of constitutional disturbance present, since this has more value in assessing a patient's prospect of recovery than the mere extent of lung involved. The "T.B. plus" cases are sorted into three groups, the first of which must have physical signs and symptoms of such limited degree that probably no more than 10 or 15 per cent. of the cases ordinarily treated in a sanatorium would satisfy the criteria. At the other end of the scale is Group 3, equally limited in numbers and defined as follows:—

> "Cases with profound systemic disturbance or constitutional deterioration; with marked impairment of function, either local or general, and with little or no prospect of recovery. All cases with grave complications, whether tuberculous or not, should be classified in this group—e.g., diabetes, tuberculosis of larynx or intestine, &c."

These criteria seem to be not alternative but cumulative, and it is unlikely that a definition, to which in practice widely varying interpretations will be given, and which is so illogical as to make the classification depend on the prognosis instead of the opposite way about, can stand the test of time. The great mass of intermediate cases, probably 70 per cent. of the whole clientele of the average dispensary, is left to form Group 2 without any means of further subdivision. More successful are the definitions stating the results of treatment—namely, "cured," "arrested," "quiescent," "improved," and "no material improvement" The model case records set out for completion by tuberculosis officers, sanatorium physicians, and panel doctors treating insured cases of tuberculosis appear to meet all requirements. A new feature, copied from the Ministry of Pensions, is that the accumulating records shall form a transferable dossier to be put at the disposal of the sanatorium or hospital when the patient is admitted there, or transferred to another dispensary when the patient moves from one area to another.

The Ministry makes it clear that the general practitioner is expected to provide the ordinary treatment of tuberculous patients where these are insured or can afford to pay for medical attendance. The functions of the tuberculosis dispensary are limited to diagnosis, consultation, and general supervision, with treatment for such patients as require special knowledge or technical skill or cannot obtain other adequate medical attendance. Every patient is regarded as being continuously under the "general supervision" of the tuberculosis officer, and should be examined by him at least once a year. The procedure in regard to contact cases is laid down, and pressure is brought on the tuberculosis officer to make a definite diagnosis in observation cases within two months after the first examination. While some such provision may appear necessary where the tuberculosis officer is easy-going or reluctant to make up his mind, it is conceivable that the rigid observance of this rule may lead in certain cases to ill-considered diagnoses. No 63944

## THE HEALTH OF MERCHANT SEAMEN.

NORWAY, with her long coastline, is one of the foremost seafaring nations, so it is not surprising to learn that the Norwegian Red Cross has taken up the question of the health of merchant seamen. The Red Cross, with its peacetime health programme, is an international body peculiarly well fitted to undertake this task, and it may be recalled that the Norwegian Red Cross, at the Third General Council of the League of Red Cross Societies held in Paris in 1924, appealed to other national societies in this matter The assembled delegates of the 54 National Red Cross Societies thereupon passed the following resolution :—

> The General Council, having taken note of the interesting pioneer work undertaken, in coöperation with Governmental departments, by the Norwegian Red Cross for the improvement of health in the Merchant Service, and believing that this constitutes a new and promising field of Red Cross activity, recommends the National Red Cross Societies of all maritime countries to take part in this activity as far as possible, through the following channels : (*a*) Educational propaganda on board ships, by posters, pamphlets, and other means. (*b*) Improvement of existing manuals on hygiene for seamen, or publication of new ones. (*c*) Establishment of Red Cross health centres with clinics for the medical treatment of seamen. (*d*) Drawing up of plans for the supply of up-to-date medicine chests (*e*) Request to the Norwegian Red Cross, through the intermediary of the Secretariat of the League, to collect the results of efforts undertaken in accordance with (*b*) and (*d*), and to draw up a plan for an international type of medicine chest and manual, based on these results.
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> The General Council desires to express its conviction that the International Conventions at present under discussion for the prevention of venereal diseases should be extended to include a wider health programme for seamen of the Merchant Service and requests the Norwegian Red Cross jointly with the Secretariat of the League to forward a communication to this effect to the Joint Maritime Commission of the International Labour Office.

In an article published in the January number of the *World's Health*, Dr. Harold Engelson, of Norway, describes the steps which have been taken by the Norwegian Red Cross since the passing of this resolution, and appeals to other nations to assist in the effort to improve the health of merchant seamen. In Norway 21 medical stations have been established by the Red Cross in the principal seaport towns, and doctors have been appointed, whose duty it is to look after all sailors, of whatever nationality, who apply for treatment. Usually these doctors are also medical officers of health, and they carry on this work by special arrangement, in addition to their other duties. A moderate charge is made which the sailor himself is asked to pay, as it has been found that he is willing and able to pay, but often does not know where to apply for help. Dr. Engelsen suggests that it should be stated in the sailor's certificate when he was last vaccinated against small-pox and inoculated against typhoid, paratyphoid A and B, cholera, and plague. He also suggests that the Red Cross doctor should record in a note-book the patient's name, nationality, disease, treatment and date of treatment, and that this book should be handed to the sailor, with instructions to present it next time he requires treatment in a foreign port. The Red Cross on the cover would act as a passport to any Red Cross medical station, and the fact that he had a written record might encourage the sailor to apply for treatment in a foreign port, as it would lessen the difficulty of explaining his case.

The Norwegian Red Cross, while fully recognising the importance of the step which has been taken by the adoption of an international agreement for the establishment of venereal disease clinics for seamen, is of the opinion that the question of the health of merchant seamen should be dealt with in its entirety, not limited to any one disease. Special clinics for the treatment of venereal disease only, it is felt, may deter sailors from applying for treatment owing to a feeling of shame, whereas if medical stations were established in ports throughout the world where all diseases were treated, these clinics would soon become known and valued by seafaring folk. Soldiers and sailors have always had a first call upon the services of the Red Cross and it is not likely that this appeal will be made in vain. Already other national societies are showing their interest. The Greek Red Cross has appointed a committee to consider the question, and this committee has recommended the establishment of medical stations in the principal ports of Greece. The Central Committee of the Norwegian Red Cross Society is considering the possibility of organising this summer a tour of inspection of certain ports in Norway in order that representatives of National Red Cross Societies interested in this matter may study on the spot the working of the Red Cross stations for seamen.

## A GREAT WAR HOSPITAL.

IT has been decided that Bellahouston Red Cross Hospital shall be demolished save a small portion temporarily retained for the Pensions Ministry. During three years of war and in the year following there were received into the hospital 14,807 sick and wounded soldiers drawn from every section of the Imperial forces. The success of the undertaking offers lessons in construction, organisation, and finance. In 1915 a large hospital had to be put up at a time when labour and materials were scarce. It had to be quickly finished and easily expansible. Asbestos sheeting was selected as material and the one-storey bungalow system, with its saving of lifts and stairs, was adopted. The whole was built upon the central corridor plan, the corridor running north and south with blocks opening off it on each side. Between the blocks, each of which held 50 beds and was complete in itself, there was enough space to allow patients to be wheeled out into the air and sunshine. The hospital came into use with 500 beds, but later its size was increased to hold 1200. A special department for orthopædics, curative baths, physical therapy, and orthopædic workshops was added, as well as the necessary annexes for the staff; and the fact that all this was done at an outlay of

£100,000, including equipment, showed that the Scottish Red Cross had been wise in adopting a simpler method of hospital construction than that usually in vogue. The hospital was regarded officially as one of the best arranged and equipped hospitals in the kingdom. In an article contributed to the *Glasgow Herald* Sir George Beatson draws the attention of those interested in the problems of civil hospitals to the experience gained at Bellahouston. The civilian voluntary hospitals, he says, have defects in their construction, their organisation, and their finance, though their management is excellent. The usual type of hospital building is costly to erect, expensive to run, and gives meagre accommodation for the money spent on it. There is also an absence of coördination between the different hospitals. What is needed, he says, is the regional distribution, around central hospitals, of auxiliary hospital groups, and clearing-houses for the disposal of the patients. The present system of hospital finance is out of date and must be adapted—without imperilling the voluntary principle—to present-day requirements. In these things, he suggests, the history of the Bellahouston Hospital would well repay study.

## THE APPRAISAL OF PUBLIC HEALTH WORK.[1]

THE handsome volume issued by the American Child Health Association embodies an important contribution to public health literature, for it gives the details, with abundant examples, of a method of measuring public health activities which enables the relative position of any sanitary area to be contrasted by means of a single numerical marking with that of other areas. It is significant of a sound view of the intimate relation between child health organisation and public health organisation as a whole that the health survey of 86 cities embodied in this volume is made by a staff of five hygienists on behalf of the American Child Health Association. The outstanding results of the survey show that while in each city some organised effort was being carried on for bettering the health of children, the amount on an average was not more than half what might be expected in a reasonable health programme. The cities whose experience is thus summarised had a population at the last American census ranging from 40,000 to 70,000. They were scattered over 31 States, and may be regarded as representing all sections of the country.

Some of the results of the survey may be briefly stated. In less than half of these cities was a whole-time officer employed, in 22 of the cities the health officer was non-medical, and in only two had he a public health degree. The salary for whole-time health officers averaged £700. We learn that the utilisation of the vital records of births and deaths in revealing the state and trend of health is not common practice, though some cities obtained full marks while others obtained none under this heading. The average marking for the 86 cities was highest in elementary sanitation, next highest in laboratory work and in infant hygiene; vital statistics, venereal disease, tuberculosis, school hygiene, communicable diseases, prenatal hygiene, pre-school hygiene, and popular health instruction following in descending order of excellence, the average marking for the last-named item being only 21 per cent. of the marking for a full programme. The chief interest of the report lies, however, in its suggestions of possibilities of quantitative assessment of the relative position of various communities in respect of public health administration; and especially in the proposal to summarise the relative position of each community by means of a final comparative figure. The history of progressive effort to arrive at this result is an excellent example of organised team-work, in which the American Child Health Association has coöperated with the American Public Health Association, the final scale of marking adopted in the present volume having been fixed at a conference of representative health officers.

The appraisal form adopted in this investigation is as follows:—

| | | |
|---|---|---|
| Vital statistics | | 60 |
| Communicable disease control | | 175 |
| Venereal disease control | | 50 |
| Tuberculosis control | | 100 |
| Health of the child— | | |
| Prenatal | 75 | 350 |
| Infant | 75 | |
| Pre-school | 50 | |
| School | 150 | |
| Sanitation— | | |
| Sanitary inspection | 20 | 175 |
| Food and milk control | 75 | |
| Water | 40 | |
| Sewerage | 40 | |
| Laboratory | | 70 |
| Popular health instruction | | 20 |
| | | 1000 |

Doubtless this marking will be modified in the light of experience, and appreciation of its value must necessarily depend on the details under each heading, which cannot be given here owing to considerations of space. It will be noted that the appraisal is not based on money expended or on personnel employed, as this may represent resources more than performance. Nor is it based on mortality or sickness rates; for it is conceivable that a high rate in one area may be associated with better public health work than a low rate in, let us say, a dormitory outflow from an industrial town. In the form typical activities susceptible of definite and quantitative measurement are selected—e.g., number of children at instructive clinics, physical defects of school-children detected and treated, number of cases of tuberculosis hospitalised, laboratory tests made, and so on. These and similar activities receive a weighting, as partially indicated in the above table; and doubtless opinions may differ as to the relative markings adopted. The importance of an unbalanced marking evidently can be minimised by stating the results for each city in detail; and a chief gain from such an investigation would be the possibilities of aggregate and of detailed comparison with other communities. For tactical reasons individual markings are not given in this volume; but in communicating local results to the health officer of each city he is informed of the details of the local marking. The total aggregate marking evidently has a high value, just as has the expectation of life given by a carefully constructed life table; but alone it can give only the *vue toute ensemble;* and it needs to be supplemented by a statement of marking for individual items, just as in a life table it is necessary to know also the probabilities of life and death at each year of age or at each quinquennial period of life, if a complete picture of the vital statistics summarised in the life table is to be obtained, and if special attention is to be concentrated on effort to diminish excessive mortality at any one period of life.

The appraisal form can be made the means for valuable educational work. It can be used to secure additional expenditure on needed public health work, as a pointer showing in what directions improved administration is called for, as a summation of an annual survey of work, and as a means of arousing and maintaining public interest in the work of the health department. It is fully realised that such an appraisal form can have only a partially scientific basis, as judgment of the relative value of various health activities must vary with local circumstances and with increasing knowledge. But, although this is so, we welcome this volume as embodying an important contribution to public health literature, and as pointing the way to a rational method of comparing public health work in different communities, and, above all, of stimulating to better and more extensive work wherever this is required.

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[1] A Health Survey of 86 Cities by the Research Division of the American Child Health Association. Published by the Association at 370 Seventh Avenue, New York. With 43 charts. Pp. 614. $3.

## GLYCOSURIA AND LIFE ASSURANCE

RECENT letters in our columns[1] have raised the question of the correct attitude of the life insurance office to clients whose urine contains a copper-reducing substance. Formerly it was thought that such a substance must be dextrose and therefore that the patient had diabetes mellitus. The recognition that the urine may contain other copper-reducing substances has led to more careful investigation. Even if the copper-reducing substance be dextrose, this is not sufficient to prove that the patient has diabetes mellitus and insurance offices who do no more than this test are not dealing quite fairly by their clients. It is now recognised that the blood-sugar is not constant throughout the day, but may rise as high as 0·18 per cent. after a carbohydrate meal. The blood-sugar in healthy persons has usually returned to normal after one to two hours, and unless the blood sugar rises above the level of the threshold of the kidney for sugar none can be detected in the urine by ordinary tests. The threshold of the kidney is set at 0·16 or 0·19 per cent. in the great majority of persons but it may be either higher or lower than this level. If it be lower, sugar may be present either after each meal or throughout the day, depending on the level of the threshold. Patients who have a normal sugar tolerance, but have a lowered kidney threshold for sugar are said to have a renal glycosuria. In the past these patients have been diagnosed as having diabetes mellitus, but this mistake should no longer be made. Admittedly the condition has not long been recognised, but there are some patients whose blood sugar curves have been under observation for over ten years, and whose condition has not undergone any change. There does not seem any reason why such persons should not be accepted at ordinary risks by the insurance offices. Some offices, it appears, are already doing this, but others either refer the patient to his medical attendant or defer the examination for a short period. In the light of our present knowledge this attitude does not seem correct. It would be an advantage to such a client if he (or his medical attendant) were told that he could not be accepted until his sugar tolerance had been proved normal by careful tests. If the blood-sugar curve was absolutely normal, the patient could well be accepted at ordinary rates. If it was not quite normal the patient should be deferred for a period of three months and then re-examined. Such a procedure entails a good deal of work, but the results should go far to remove any grounds for criticism of insurance offices.

## THE VALUE OF CARDIAC AUSCULTATION

IN the mind of the public the doctor is as inevitably associated with the stethoscope as is the cobbler with his last or the mason with his trowel. And the necessity of this conjunction is apparently felt almost as widely in the ranks of the profession itself, for we recently met an obstetrician who held that it was as futile for a physician to be without a stethoscope as for an accoucheur to be without forceps. To all those believing in this necessity the words of Dr Otto May, in his address to the Assurance Medical Society printed in another column, will come as rank heresy. "I say," he writes, "in all seriousness, that it was a bad day for life assurance when the stethoscope was first applied to the heart, that it has done more to confuse the issues between proposer and company than most of us can realise. Conceive, if you can, the enormous number of perfectly good lives rejected, and, what is worse, made unhappy and invalided, by the discovery of a perfectly harmless murmur'! Conceive, on the other hand, the number of thoroughly bad lives accepted as a result of the examiner's acceptance of the stethoscope as the practical arbiter of the heart's condition — no murmur therefore a good heart.' I repeat that on balance, the harm done, not only to life assurance, but to medicine generally, by the auscultation of the heart, immeasurably outweighs the good." These are very strong words, but whether we agree with the writer's conclusions or not there can be little dispute concerning his facts, of which the most serious is that healthy people are constantly led towards a permanent neurosis by the discovery of some peculiar but unimportant cardiac sound. The same result was produced during the war, when many thousands of healthy men were rejected for military service for the same reason, and it is unhappily true that once a man believes his heart to be unsound he will seldom be dissuaded even by the efforts of many cardiac specialists. But, accepting this, would we be right in rejecting the use of the stethoscope on the heart by students? Surely not. There is no reason to reject this most useful instrument in cardiology, because for a considerable period after the interpretation of murmurs had first been attempted an exaggerated value was placed on their importance by clinical teachers. This is a natural sequence of all medical discoveries and it may well be that reaction therefrom may be pushing modern opinion too far in the other direction. In France, as in many European countries, the stethoscope is still used with less frequency than in our own; but it is doubtful whether the general knowledge concerning the essentials of cardiac examination is greater abroad than in Great Britain. No doubt the foreign student will emphasise the evidence obtained by his eyes and fingers where our own will tend to exaggerate that given by the stethoscope, but the well trained and intelligent student will, in all countries, have learnt to obtain a wider series of facts from which to draw conclusions. In the next paragraph of his address Dr May gives deserved praise to the advance in knowledge which has followed the discovery of the significance of various types of cardiac irregularity. But can it be said that a practitioner who condemns a patient on account of a simple systolic murmur at the apex, will not make equally grave mistakes when confronted with some marked but benign type of cardiac irregularity? It is true that here again mistakes are frequently made by the inexperienced, but they are largely due to the fact that the detection of slight physical signs, whether by the use of the eye, the fingers, or the ear, or by any instrument which aids these senses, can only be arrived at after years of intelligent study. A house physician recently complained of the number of gastric cases admitted to his wards. "What is the interest of a gastric ulcer," he said, 'you can't listen to it!'" For such melomaniacs there is scanty hope, but we believe that assurance authorities may reasonably expect to see a steady improvement in diagnostic and prognostic skill as regards cardiology, without the abandonment of the physician's silent friend.

## GROUP STETHOSCOPY

A FORM of multiple electrical stethoscope, presented to the Royal Free Hospital, was recently described by Dr Jenner Hoskin in our columns.[1] A similar instrument was demonstrated to the Faculty of Medicine in Paris by the Dean Prof. Roger, and Drs. Le Mée, Hélie, and Rist. The apparatus was devised by the Western Electric Company, of America, and loaned to Dr Le Mée, who, with Dr. Hélie visited the United States to represent French medicine and promote Franco American medical relations. This apparatus, appearing for the first time in France, permits at least 600 persons to hear normal and abnormal cardiac and pulmonary sounds by means of numerous receivers to which stethoscopes are attached. The sounds are reinforced microphonically and also produced by a loud speaker. They are heard preferably with the stethoscope since the general amplifier does not reproduce them so exactly. The apparatus [illegible] The periods or frequencies of cardiac and pulmonary sounds range from 0 to 11[illegible] vibrations [illegible]

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[1] THE LANCET Dec 19th, 1925 p. 1307, Jan. 2nd, 1926, p 48, and the present issue

[1] THE LANCET, 1925 [illegible]

For normal cardiac sounds the range is from 0 to 130, while different pathological sounds have ranges, respectively, of 130 to 400, 400 to 650, and 650 to 1100 vibrations. Sounds not within the ranges mentioned are automatically excluded. For example, fœtal heart sounds heard during labour are not accompanied and obscured by cries uttered by the parturient woman. Again, sounds of any range desired, of those mentioned above, may be minutely studied by excluding sounds of other ranges. These modalities are obtained by means of so-called "filters," which may be switched into circuit as desired. Some 250 persons present at the demonstration in Paris were all able to hear the sounds thus amplified and transmitted from normal human subjects, from cases of various types of cardiac and pulmonary affections, and from the heart-beats of an anæsthetised dog. Very complete illustrative diagrams aided materially in the clear interpretation of the sounds. The apparatus, already considerably used in the United States in the instruction of medical students, may also be utilised for deliberate clinical study, photographic representation of cardiac and pulmonary sounds, and the preparation of gramophone records for permanent record of interesting cases or for diagnosis at a distance. The apparatus costs about 60,000 francs.

WE regret to announce the death at Glasgow on Jan. 2nd of Prof. J. G. McKendrick, M.D., F.R.S., who occupied the Chair of Physiology at Glasgow from 1876 to 1906. We hope to publish later a short account of his life.

THE death of Prof. Edward Granville Browne, M.B., F.R.C.P., occurred at Newcastle-on-Tyne on Jan. 5th. Prof. Browne was a Fellow of Pembroke College and was Sir Thomas Adams's professor of Arabic in the University of Cambridge.

ON Jan. 5th the Prince of Wales received the honorary diploma of the Society of Apothecaries. The presentation was made at St. James's Palace by the Master of the Company (Dr. T. V. Dickinson), who was accompanied by Dr. A. Hepburn, Dr. R. Whiteside, Mr. Samuel Osborn, and Mr. Bingham Watson (Clerk). The diploma is contained in a casket of silver and shagreen.

DURING the last few months the Secretary of State for Dominion Affairs has foreshadowed improvements in the Colonial Medical Service which, it was hoped, would prove a definite step forward in public health policy. The conditions now announced for service both in East and West Africa have certain desirable features in regard to future tenure, but we lack as yet the assurance that the liberty of existing practitioners to private practice will be respected. Moreover, it would be a distinct hardship for officers engaged on the understanding that they were to serve in one area now to be transferred to another according to the exigencies of the Service. We shall be glad to learn that the new regulations sufficiently safeguard existing agreements.

## INDEX TO "THE LANCET," VOL. II., 1925.

THE Index and Title-page to Vol. II., 1925, which was completed with the issue of Dec. 26th, will shortly be published. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers wishing to receive the Indexes regularly as published should indicate this desire.

DIPHTHERIA IN WALES.—In the colliery village of Bryn, Port Talbot, owing to an outbreak of diphtheria—about 30 cases—the school has been closed for three weeks. The accommodation at Port Talbot Isolation Hospital is overtaxed. In the Amman Valley, Carmarthenshire, diphtheria is also prevalent, and several deaths are reported.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLV.—THE TREATMENT OF HUMAN ANTHRAX.

HUMAN anthrax has gradually become much less prevalent than it used to be, at least in the civilised parts of the world. The slight increase observed in many countries during the Great War did not prove of a lasting nature. In many large European countries, including Great Britain, the number of cases per year nowadays hardly reaches 100, though in Russia it went up to 13,000 cases in 1924. The causes for this gradual disappearance are not far to seek. Anthrax is primarily an animal disease, and as a result of Pasteur's fundamental work, preventive inoculation of susceptible animals has practically stamped out the disease in many countries. Imported dead material (skins, hair, wool) has thus become the only source of infection.

These facts are of importance in connexion with the treatment of human anthrax in two respects. First, in view of the comparative rarity of the disease few practitioners can acquire first-hand knowledge of its manifestations, and the rest have to rely on text-book information for the diagnosis of a disease where speedy recognition is an essential factor in treatment. Secondly, a practitioner can hardly be expected to equip himself for the specific treatment of a disease which he is very unlikely to encounter. The specific serum is not always easily obtained in out-of-the-way places. A reliable chemo-therapeutic method of treatment such as that described below is therefore of considerable value.

The mortality of human anthrax seems to vary, but it is far from negligible. Most statistics do not differentiate between pulmonary and cutaneous anthrax. The majority of cases fortunately are cutaneous anthrax, but even for these one must assume a mortality of about 10 per cent., and this includes treated and untreated cases. It is futile to discuss "virulence" and "disposition" in this connexion, since no information about these points is forthcoming.

### *Diagnosis.*

As F. W. Eurich has pointed out, the early diagnosis of pulmonary anthrax is particularly difficult. E. Fraenkel has recently stated that primary lesions in the trachea and at the bifurcation are the rule in such cases, but inspection of these regions will rarely be practicable. Eurich notes that the pictures of cutaneous anthrax in present-day text-books represent late stages, and that the first symptoms of cutaneous anthrax do not suggest anything like "malignant pustule." However, most patients reach the doctor only when the pustule is well developed.

Microscopical diagnosis is usually described as rapid and easy, but in practice one generally has to be satisfied with a clinical diagnosis. Bacteriological confirmation is, of course, highly desirable. Very extensive œdema around a comparatively small central lesion will suggest anthrax, but only if that possibility is borne in mind. Here circumstantial evidence (occupation, dealings with dead cattle, a new shaving-brush), or in other words, a good case-history, is of at least as much importance as mere clinical appearances.

### *General Measures.*

Specific prevention of human infection seems indicated for persons engaged in specially dangerous occupations, but apart from injections of the specific serum in cases where infection has probably already occurred, no attempts in this direction seem to have been made. As regards the treatment of human cases of anthrax, the surgeon's day has passed. The cautery is no longer used, and it is generally recognised that incision or excision, short of amputation of a limb, does more harm than good. An exception must be made for those (perhaps hypothetical) cases where the disease is really in its very first stage, and the microbes clearly have not yet made their way into the deep tissues beyond the reach of the surgeon's knife. In all other cases, that is, practically always, the local treatment should consist of rest, and the application of a dressing soaked in a mild disinfectant. Rest can, as a rule, be secured by sandbags. It follows that an anthrax patient should be in bed, fever or no fever, for the affection always tends to become a septicæmia, and this complication should be avoided as long as possible

### *Specific Treatment: Serum.*

The orthodox specific treatment of anthrax is by means of anthrax serum, with which the names of A. Sclavo, E Marchoux, and G. Sobernheim are associated. Its method of action is unexplained, and it has not been shown to possess bactericidal properties, at least not *in vitro* It certainly contains agglutinins and bacteriotropins, and the presence of antitoxins seems likely. The serum is produced in animals (sheep, asses, or oxen) by means of injections of attenuated anthrax virus, followed by injections of virulent cultures Good results have been observed with this serum in many cases, especially by Sclavo At the 1924 session of the Health Committee of the League of Nations various members testified to the excellent results obtained by the use of anthrax serum in their respective countries. It has proved effective even during the last stages of the disease (D Ottolenghi) In view of these results the members of the Committee suggested that the time had come to undertake investigations for its titration. The exact value of anthrax serum is difficult to gauge where so little is known about the virulence of the infecting material, and the standardisation of the serum has not yet been undertaken. It may be hoped that the keeping qualities of the serum, especially under tropical conditions, will be included in the projected investigations.

The application of the serum, when available, is certainly indicated in all stages of the disease. It must be remembered that good results can only be expected from really large doses. At least 30 c.cm. should be given the first time, preferably intravenously. The following daily doses may then be made smaller, and can be given subcutaneously. Acting on these principles Sclavo succeeded in reducing the mortality, calculated from a large number of cases, from 24 to 6 per cent. Some recent authors advocate very large doses, and these in combination with excision. From the nature of the disease it is quite likely that cases will occur where serum is not available, or at least not readily available, in sufficiently large quantities. Even then surgical measures should, in my opinion, be avoided, for there are other efficacious measures (see below) Certain curious observations by R. Kraus, working in South America, have attracted some attention. He claims that the serum of normal, untreated sheep and cows possesses protective and curative properties against anthrax infection, which are quite comparable to those of the specially prepared serum. These observations, when put to the test by others, have not been confirmed, but quite recently Kraus has again maintained that his observations, based both on clinical and laboratory experience, were correct.

### *Chemical Treatment.*

Efforts to control anthrax infection in man with injections of such chemical preparations as auramine or argochrom have not yet got beyond the discouraging stage of "encouraging results."

*Salvarsan.*—Treatment with neosalvarsan (or substitutes) was inaugurated by F Becker. Although splendid results were obtained by him, and shortly afterwards by others, this form of treatment has not come into general use, nor has it received much encouragement from writers of text-books. In medical journals may be found an occasional report on the excellent results obtained through the use of this drug. Eurich only advises its use when serum fails or is unobtainable Quiet recently O M. Rovsing has again emphasised the virtues of neosalvarsan, but the drug has not received the attention which it deserves. In 1918 I introduced this form of treatment into South Africa. It was then used in two cases, and these not only survived their infection, but made a particularly rapid recovery. This was all the more striking because in the preceding year, working in the same district, I had attended two similar cases, and in spite of surgical measures both were dead within a week. It must be added that anthrax serum was not then, and probably is not now, available in South Africa, or at least not readily available.

During the last few years, at the Pretoria Hospital, we have had a good opportunity of testing the value of the salvarsan treatment. Since 1921 all cases of anthrax entering this hospital have been treated exclusively with salvarsan. We now have records of a series of over 40 consecutive cases, and there has not been a single death It must be admitted that we have had no cases of pulmonary anthrax. Some cutaneous infections, however, were very severe, and one or two were admitted in what seemed to be a moribund condition. A striking instance was that of a youth, employed at the Onderstepoort Veterinary Research Laboratory, who against all warnings had been careless with the very virulent anthrax cultures grown in that laboratory. A huge sore developed on his lip, and he arrived at the hospital in a septicæmic condition. A few injections of neosalvarsan saved even this patient.

As a result of this series of successful cases the Secretary for Public Health of the Union of South Africa has sent a special circular to all district surgeons of the Union, in which their attention was called to the salvarsan treatment. This led to its more extensive use, with, as far as we know, complete success. It is noteworthy that during these same years a few deaths from anthrax have been recorded in the Union and that in these cases salvarsan was not tried.

### *The Routine Followed.*

At the present time the routine treatment of anthrax at the Pretoria Hospital is as follows. Directly after the suspected patient is admitted, smears are examined from the sore, preferably from the vesicles. In this way a diagnosis can be made with a probability approaching certainty in a few minutes. In doubtful cases this has, of course, to be confirmed culturally. The next process is an intravenous injection of 0·6 g. to 0·9 g. neosalvarsan, the exact dose depending on the condition of the patient. The worse the patient appears to be, the bigger the dose. Anthrax patients apparently stand large doses of salvarsan quite well. The patient is put to bed, a mild antiseptic dressing (weak formalin solution is very suitable) is applied, and the part is immobilised. The injection of salvarsan is repeated the next day. A rise of temperature is a common result of the injections. Some cases require a third injection on the fourth day of treatment, but this is exceptional. As a rule the symptoms, especially the œdema, show definite improvement on the third, sometimes on the second day of treatment The temperature comes down to normal in five or six days, the necrotic part drops off, and generally a surprisingly small scar is all that remains.

The salvarsan treatment of anthrax has never failed us yet, although its theoretical foundation may be lacking. The obvious advantages are that it requires no special outlay nor preparations, that it can be applied at a moment's notice, that it is safe, sure, and quick, and that the lesions heal with a minimum amount of disfigurement.

ADRIANUS PIJPER, M.D. Leiden,
Pathologist to the Pretoria Hospital, the Pretoria
Municipality, and the Pretoria
Mental Hospital

# Special Articles.

## A DISCUSSION ON FRACTURES IN THE NEIGHBOURHOOD OF THE ANKLE-JOINT.[*]

### II.—THE OPERATIVE TREATMENT OF ANKLE FRACTURES.

By W. H. Trethowan, F.R.C.S. Eng.,
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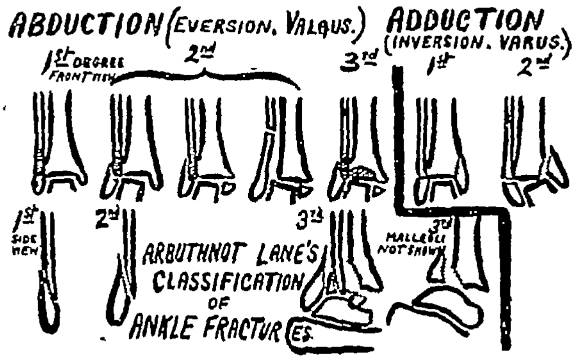
My remarks are directed to the classification, causation, and treatment of malleolar fractures. From none of these aspects is the subject so difficult as the careful and academic survey of the opener of this discussion would suggest. For the purposes of teaching and formulating treatment a simple and clear-cut idea of the one or two principles involved, and the definite types of fracture that occur, would seem to be desirable.

For simplicity, accuracy, comprehensiveness, and practical applicability there can be no better classification than that of Arbuthnot Lane, who, 25 years ago,[†] was the first to group the various malleolar fractures in such a way that their relationship to one another could easily be understood. Further, he made clear beyond doubt the mechanics of their production, and—the greatest principle involved—he emphasised the importance of perfect anatomical reconstruction as a prime necessity for the complete restoration of function. Lane, with his grasp of skeletal mechanics, is one of the greatest orthopædic surgeons we have had, a fact which can be appreciated only by the few who will look beyond the details of "plates and screws" for the general principles he postulates. Lane's conception of "traumatic" or "mechanical" arthritis resulting from skeletal mal-alignment, occurring as well in postural, occupational, and pathological conditions, as in trans-articular fractures, and causing the eventual breakdown of function of a joint, is one of the most important factors in determining methods of treatment in bone and joint surgery.

Fig. 11.


ABDUCTION (EVERSION. VALGUS.)
ADDUCTION (INVERSION. VARUS.)
1st DEGREE FRONT VIEW
2nd
3rd
1st
2nd
1st SIDE VIEW
2nd
3rd
3rd MALLEOLI NOT SHOWN
ARBUTHNOT LANE'S CLASSIFICATION OF ANKLE FRACTURES

Lane's classification of ankle fractures.

The recent comprehensive work on ankle fractures by American writers, referred to by the opener of this discussion, adds nothing to what has already been done by Lane, but serves rather to cloud a subject already clarified to simplicity itself. Lane classified the ankle fractures according to the degree of deformity, and showed there were only five fractures, all typical and constantly occurring (Fig. 11).

(1) *Abduction Fractures* (eversion, or valgus).—Three degrees, according to the displacement.

First degree: Oblique (torsion) fracture of the fibular malleolus. Line of infraction runs from above and behind downwards and forwards. Inferior tibio-fibular ligament remains intact. No displacement.

Second degree: Fracture of fibular malleolus as in the first degree, but with displacement of malleolus (and with it the astragalus and foot) outwards and slightly backwards. Fragments tend to telescope on themselves, causing shortening of the fibula. The astragalus is tilted, its outer and upper edge tending to lie at the spot where the tibia and fibula meet (lower end of inferior tibio-fibular ligament). As permitting this outward displacement of the foot in the second degree fracture, either the inner malleolus is cracked transversely at its base, by traction, or it is left intact, and, instead, the internal lateral ligament of the ankle-joint is torn through. Thus occur two subtypes of the second degree fracture. A third subtype is occasionally seen, when the fibula breaks *above* the inferior tibio-fibular ligament. This ligament itself gives way, and the lower fibular fragment becomes definitely separated from the tibia. To this third modification of the second degree fracture the term "Dupuytren's fracture" is occasionally given.

Third degree: To the malleolar fractures characteristic of the second degree is added a fracture of the posterior edge of the lower end of the tibia. The astragalus, with the foot, slips backwards, and the clinical picture produced is that of partial or complete dislocation of the ankle-joint. There may also be some outward displacement, as in the second degree, but the posterior displacement of the foot is the chief feature.

(2) *Adduction Fractures* (inversion, or varus).—Two degrees, according to the displacement.

First degree: There is a transverse fracture of the external malleolus at its base, at the level of the lower end of the tibia, the malleolus being broken by a "pull" upon it as the original violence tends to displace the foot inwards. The internal malleolus is broken obliquely vertically at its base by a "push" thrust of the displacing foot. But the fragments are not displaced, and the astragalus remains in perfect relationship with the lower end of the tibia.

Second degree: This differs from the first degree only in that the astragalus, with the foot, and also both malleoli, are displaced internally.

The method of production of these fractures is easily comprehended. The *abduction* fractures occur on forcible inward rotation of the abducted lower limb, aided by the momentum of the swinging trunk and a partly flexed knee, when the foot is firmly fixed on the ground. The foot is "torsed" off the leg by a violent external and valgus twist relative to the leg. The amount of displacement is merely a matter of the degree of the original fracturing force. If there be added a forward thrust on the lower limb (and therefore backwards on the foot) when, as in slipping on the edge of a step or on some inclined surface, the foot be also forced backwards, we get the backward thrust in addition to the external twist on the foot, and the characteristic third degree fracture results. Occasionally, in a purely backward thrust upon the foot, the posterior border of the lower end of the tibia may be broken off, permitting backward dislocation of the foot, but without fracture of the malleoli. This lower tibial fracture has recently been re-observed and re-described, but long ago Lane described it as an essential part of the third degree displacement. The *adduction* fractures result from a forcible inversion of the foot, and are further degrees of the violence which commonly produces the usual type of sprained ankle.

The mechanics of the production of abduction fractures of the ankle are the same as for many other injuries of the lower limb resulting from indirect violence. It is a matter of accident that the line of fracture actually passes through the ankle-joint, rather than occurring higher up in the limb. The line of fracture is relatively higher in the fibula, passes through the ankle-joint, and is lower on the inner side, where it passes through either the inner malleolus or the internal lateral ligament. In spiral (i.e., indirect) fractures of the leg bones the fibula is nearly always broken at a higher level than the tibia. This oblique line of cleavage occurs at different levels in various cases of fracture of the tibia and fibula. In still other cases the same violence may result, instead, in damage to the internal lateral ligament of the knee-joint and semilunar cartilage derangement; or, again, in oblique fractures of the femoral shaft, or in fracture of the neck of the femur in more elderly subjects.

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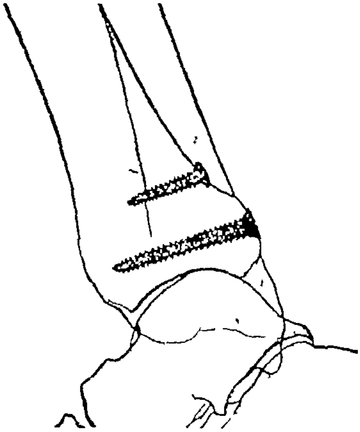
[*] The introduction to the discussion, by Mr. Harry Platt, appeared in the last issue of The Lancet.

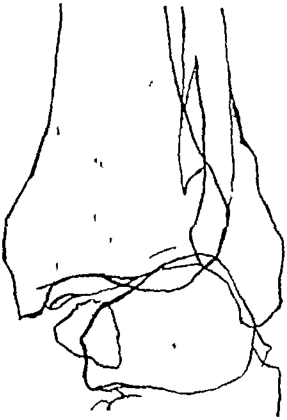
[†] The Operative Treatment of Fractures, Med. Pub. Co.

FIG 12



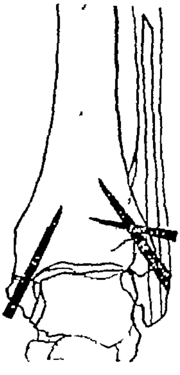
Reconstruction of posterior dislocation of foot at ankle-joint. (Recent injury) Posterior half of lower end *of tibia* displaced backwards with the foot, but malleoli *not fractured.*

FIG 13, A.



Third degree abduction fracture of six months' duration. Malunion.

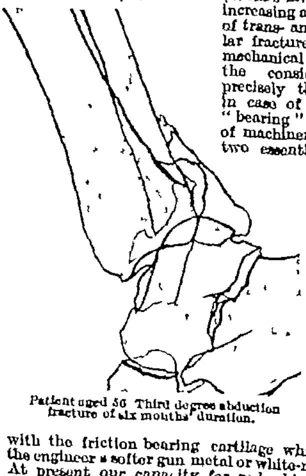
FIG. 13, B.



Patient aged 50 Third degree abduction fracture of six months' duration Intramedullary autogenous graft to reconstruct fibula. Three ivory pegs to sustain both malleoli.

The gravest type of *fracture* is that involving a joint, where a part or the whole of one bearing surface *is* displaced relatively to the other The resulting permanent disability is proportional to the displacement, and to the age of the patient—since the capacity for skeletal adaptation (Wolff's law) lessens with increasing age. Treatment of trans- and intra-articular fractures is a purely mechanical problem, and the considerations are precisely those applying in case of damage to a "bearing" in any piece of machinery There are two essentials: (1) fair and even bearing of the mutually adapted moving parts must be restored, (2) the bony ends (representing the steel foundation in an inanimate machine) may at times require to be 're bushed'' with the friction bearing cartilage which represents the engineer's softer gun metal or white-metal bearings At present our capacity for re-bushing a damaged joint is very little. In inaccurate reposition of the mutually apposed and intricately shaped bearing surfaces of a joint damaged by fracture, the friction is not evenly distributed is localised, and is excessive. As the deranged engine bearing would run hot, grate, squeak, become restricted in movement, and finally seize up or melt, so *the injured* human bearing responds with exactly the same symptoms.

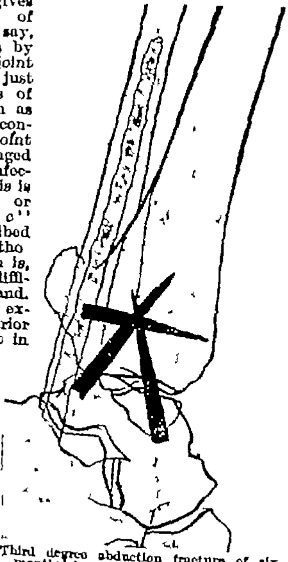
FIG 14, A.



Patient aged 50 Third degree abduction fracture of six months' duration.

Failure accurately to re-appose related joint surfaces gives *permanent* loss of efficiency—as we say, disability — thus by excoriation of joint surfaces, giving just the same signs of inflammation as occur on the continued use of a joint irreparably damaged from toxic or infective causes. This is "mechanical" or "traumatic" arthritis, as described by Lane. The pathology of malunion is, therefore, not difficult to understand. Who has not examined the interior *of an ankle-joint* in the case of an old malunited Pott's fracture? Without accurate reconstruction of the ankle-joint in malleolar fractures the onset of traumatic arthritis is inevitable sooner or later, leading to lowered efficiency. Posing as

FIG. 14, B.



Third degree abduction fracture of six months' duration. Intramedullary autogenous graft to reconstruct fibula. Three *ivory pegs to* sustain both malleoli.

surgical mechanics, we must be able to reconstruct a joint accurately. This is the only principle involved. The method is a matter of detail, according to the needs of the case or the capacity of the surgeon-mechanic; it may be manipulative or operative. The point of view I put forward is that, granted accurate anatomical reconstruction is of vital importance, in many cases reduction by manipulation alone, to a degree of accuracy sufficient to ensure against the gradual onset of disability from mechanical arthritis in later years, is impossible. Therefore there should be a freer resort to open operative correction. This advocacy of open correction presupposes a mechanical ability, and a surgical technique beyond reproach. It is the duty of a surgeon-mechanic to be able, fearlessly and without anxiety, to deal with a human joint as intimately as the mechanic does with a machine bearing. Manipulative reconstruction in the more severely comminuted cases is on a par with trying to do a jig-saw puzzle by manipulating the pieces through the wall of a bag in which they are inaccessibly tied up. Where there is any displacement at all, even in the second degree valgus fracture with fibular malleolus alone fractured, I prefer to open up the fracture, as ensuring both the patient's complete recovery and my own peace of mind. If you elect to treat any ankle fracture with displacement by manipulative means alone, you must be careful to ascertain by skiagraphic examination that the reduction has been complete. If it is not you will have failed, and the joint is bound to break down sooner or later, from traumatic arthritis, with complaints from the patient of "rheumatism" and increasing lameness. Where no displacement exists (first degree), or when it is really corrected by manipulation, nothing more is required than the "bi-valve" plaster-of-Paris, and the application of massage within a day or two. But judging from the frequency of bad results, which we as orthopædic surgeons are so often asked to treat "with a boot," it would seem that the manipulative and plaster method in many cases meets with about the same degree of success as we might expect to attend the efforts of a motor mechanic who elected to tackle the main bearings of a car by putting plaster-of-Paris around the bonnet.

Open correction does not necessarily imply internal fixation of the fragments; this will depend on the needs of the case. Foreign material introduced for fixation purposes should be minimal. Absorptive material is preferable, but often the tension of the displaced parts necessitates the use of metal screws. I never open up a fracture without being prepared to use screws, pegs, nails, wire, sutures, or living graft, as may seem expedient. Fragments must be replaced so that they do not project and irritate the opposite joint surface. If so small as to be unfixable they are better removed. The operation for the second degree of valgus fracture is through a curved peroneal incision, behind and below the external malleolus. The fibula is re-aligned, and the lower fragment is screwed to the tibia by a 1½ to 2 inch screw driven up obliquely from the base of the malleolus, with care to avoid its passing through the outer upper corner of the ankle-joint. I prefer this single screw to a 4 to 6-hole Lane's plate on the posterior surface of the fibula. In the third degree fracture, the fibula is first re-aligned and fixed, as above. Then, by means of a long incision on the inner side of the leg, midway between the inner border of the tibia and the tendo Achillis, and curving forwards beneath the inner malleolus, the posterior fragment detached from the lower end of the tibia is fixed by one or two screws, access being between the posterior tibial artery and nerves (which are drawn forwards) and the flexor longus hallucis (retracted backwards). Finally the internal malleolus is replaced, and it may or may not require some fixation. A back splint with foot-piece is applied for two weeks. Active movements start on the third day, massage a few days later, and over the whole field when the stitches are removed in 14 days from the date of the operation. The patient may begin to take weight on the foot in four weeks from the operation. Failure to institute early movements delays the restoration of function, just as after prolonged fixation in plaster-of-Paris, and the scars may add to this tendency (Figs. 12–14, B).

With regard to fractures of some duration (malunion), the only operation that can be of any use is a complete anatomical reconstruction of the joint (see Figs. 13, A–14, B). I have reconstructed such joints up to a period of 18 months after the fracture. After two years the degree of ensuing mechanical arthritis would make the operation not worth while, and an arthrodesis of the ankle-joint, or a Syme's amputation, would be the only possible operative remedies. In these late cases the gratifying feature is the complete freedom from pain which the operation affords, although in any case operated upon after about three months from the time of the accident complete restoration of plantar- and dorsi-flexion movements is scarcely to be expected. The difficulty in these cases is the restoration of the substance of the fibula. In an abduction fracture the fibula shortens by overlapping of fragments, and even if it be cut as carefully as possible along the line of the original fracture there is bound to be a gap between the fragments when the ankle is completely reduced and the fibula re-aligned. After a trial on many methods—e.g., cutting the fibula above the fracture and grafting the gap, while leaving the original fracture intact—I find it best to cut the fibula as nearly as possible along the original line of fracture, reduce the ankle dislocation, re-align the fibular fragments, and then put an intramedullary graft, 5 inches in length and taken from the crest of the same tibia, and filed off to form a firm cylindrical bony peg of $^{3}/_{16}$ to ¼ in. diameter, up through the central canal of the fibula, after drilling out the central axis of the external malleolus and the shaft of the fibula for several inches above. The graft is driven up from below, from the tip of the external malleolus, the fibular fragments being held in correct position meanwhile. The gap in the fibula is thus bridged by autogenous living bone, and is gradually obliterated and the bone consolidated. An ivory peg similarly used seems to encourage no restoration of the fibular gap. The replacement of the fragment from the back of the lower end of the tibia, and of the inner malleolus, can be procured through an incision along the postero-internal aspect of the leg and ankle, as in the operation for the recent third degree abduction fracture. Here a simple fixation, by wire nail or ivory peg, will suffice.

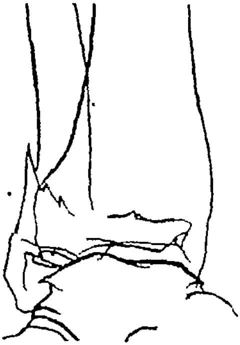
The "classical" operations of the past age, for malunited Pott's fracture, are useless, as they ignore the only mechanical consideration—viz., that the bearing surfaces of the lower end of the tibia and upper aspect of the astragalus shall be accurately and horizontally restored in correct mutual relationship. In this condemnation come malleolar and supra-malleolar osteotomies. It is true they may give a superficial cosmetic result, but their mechanics will not bear examination. As Lane has always maintained, "restore the fibula in its alignment and length." The rest "shall be added unto you."

## III.—THE OPERATIVE TREATMENT OF ANKLE FRACTURES.

By H. A. T. Fairbank, M.S. Lond., F.R.C.S. Eng.,
SENIOR ORTHOPÆDIC SURGEON, KING'S COLLEGE HOSPITAL.

It seems to me that the chief point that calls for discussion in Mr. Platt's most admirable opening paper is the amount of displacement of the fibular fragments in relation to the necessity for operative reduction and fixation. For the sake of argument I show slides of a case with the usual oblique fracture of the fibula, but without obvious displacement of the astragalus and without fracture of the tibia (Fig. 15). In such a case, when young or middle aged, I should certainly operate. Greater difficulty is experienced in maintaining reduction than in the actual correction of the deformity. Even when the position of the astragalus is perfect, the slightest tilt of the lower fragment of the fibula spoils the fit of the bones forming the ankle joint, and any instability in the joint means grave risk of arthritis and disability. I have seen large numbers of such cases who continued to have pain, &c., for many months and years. Even with an open wound the difficulty often experienced in holding the fragments in perfect position while a plate and screws are inserted is very striking Absolute perfection in the replacement is essential, as without it the fit of the joint will still be imperfect. When a case with minor displacement is only seen four or five weeks after the accident, operation is often inadvisable because the callus increases the difficulty of obtaining the perfect restoration of the fragment which, in such cases, alone justifies treatment by the open method If I understood Mr Platt correctly, he said that the average time that elapsed before the patients in his series were finally discharged, was six months, and he was disappointed with the results in quite a number of those. But when these cases were investigated after a further period of several months had elapsed, he was gratified to find many of those discharged with imperfect results had recovered and were at work. Surely this statement might be used as an argument in favour of the more extended use of operative methods which would lead to reduction in the length of after-treatment necessary.

FIG. 15.



Oblique fracture of fibula. Type of fracture suitable for operative reduction

Lastly, I should like to call attention to those cases of partial or complete separation of the lower epiphysis of the tibia resulting from forcible abduction. If complete, the fibula often gives way transversely in the lower third. Perfect reduction is often difficult without open operation. When the separation is incomplete, growth at the epiphyseal line is interfered with, and a progressive varus deformity not uncommonly results.

## IV.—MANIPULATIVE TREATMENT.

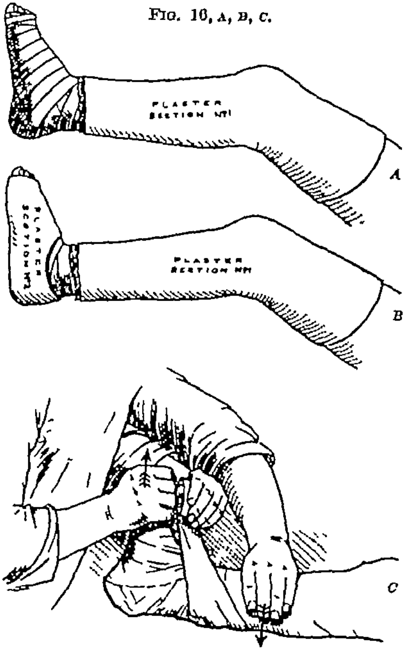
BY W. A. COCHRANE, M.B, F.R.C.S. EDIN,
ASSISTANT SURGEON, EDINBURGH ROYAL INFIRMARY

DISABILITY figures for fractures involving the different joints are readily obtained from the Industrial Board of one of the American States. In a three-year period, 1921–24, 2160 joint fractures are recorded, and of these 558 were ankle fractures. The average period of total disability was 13 0 weeks. The figures obtainable from the records of the Royal Infirmary, Edinburgh, represent a recent series of 40 cases The average period of total disability was about 15 weeks. There has been permanent partial disability in six cases. All the others have returned to their old employment. Operative treatment was not employed in this series.

I have been interested in Mr. Platt's account of the mechanism of production of the various fractures about the ankle, and the Association is indebted to him for drawing attention to the classical work of Ashhurst. It is the first account of research in this field since the days of Astley Cooper. Ashhurst's description of these cases is remarkable for the great frequency of spiral fracture of the lateral malleolus, without appreciable displacement; 60 per cent. of his series fall into this category. His classification of fractures of the ankle according to their mechanism of production is of great clinical importance. The subject is simplified by so doing and rational diagnosis and treatment made easier for the teacher and student. Another useful way of considering joint-fractures is to differentiate them into juxta-articular and intra-articular fractures. The former are situated in close relationship to the joint, but do not involve the articular surface, while the latter penetrate into the joint The juxta-articular fracture is important chiefly because of the peri-articular exudation and of the stiffness of the joint which is apt to follow if active movements and massage are not instituted early.

In the case of the intra-articular fracture, the chief consideration is the possibility, if complete anatomical replacement is not secured, of a permanent alteration in the axis of the joint. Angular deformity is the worst displacement and is responsible in many cases for a disabling traumatic arthritis when weight-bearing is resumed. The injury to the cartilage also may result in the formation of obstinate intra-articular fibrous adhesions. The recovery of function demands, therefore, that complete anatomical replacement should be the goal and that this must be followed up by early active movement. My experience has been that it is not unusual for the minor displacements to be overlooked by the practitioner. It is he and not the orthopædic surgeon who sees and treats most of the fresh cases. I would emphasise the importance therefore of teaching the physical signs of displacement very carefully to students, because it is a fact that a large proportion of these cases, occurring often in the country, are not X rayed.

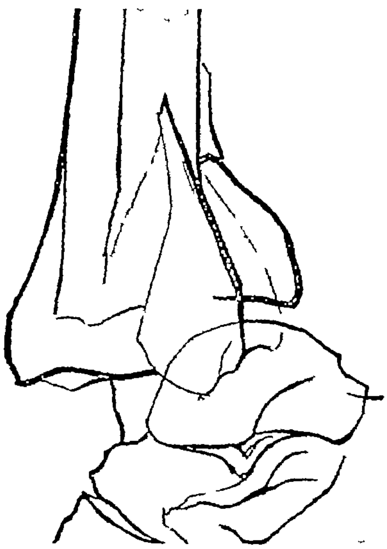
FIG. 16, A, B, C.



Illustrating method of plaster application after reduction The "three piece" plaster.

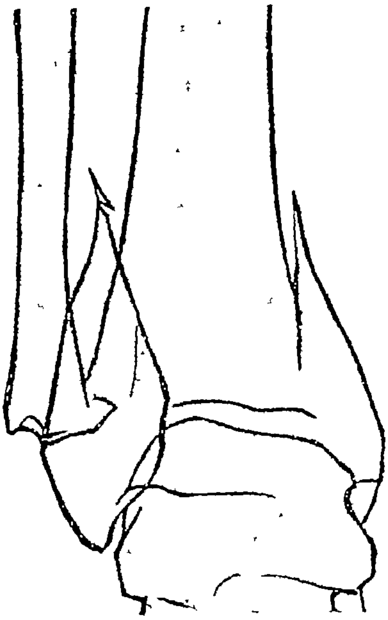
The temptation is to put the leg in a splint and to trust to massage and early movement.

FIG. 17, A.



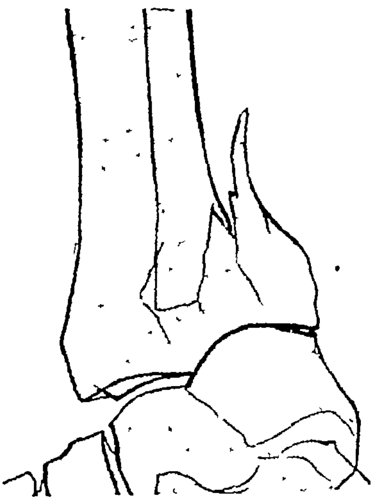
Fracture dislocation of ankle (lateral view).

FIG. 17, B.



Fracture dislocation of ankle (antero-posterior view).

FIG. 17, C.

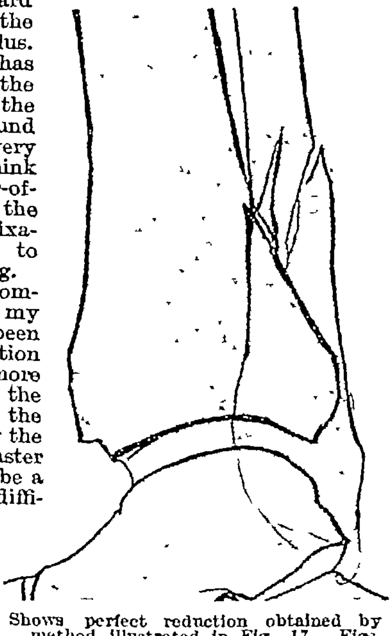


Same fracture after manipulative reduction and plaster. Displacement uncorrected.

As regards the method of reduction of a Pott's fracture, the knee should be flexed and the posterior displacement forcibly corrected, with the foot in plantar-flexion. The foot should then be forcibly dorsiflexed and inability to secure this should be regarded as indicative that reduction is incomplete. The lateral displacement should then be corrected by inward pressure upon the lateral malleolus. When reduction has been secured, the movements of the foot should be found to be free in every direction. I think that a plaster-of-Paris casing is the best means of fixation, bivalved to permit of swelling.

In the more complicated cases, my experience has been that, while reduction may be secured more or less easily, the maintenance of the reduction during the application of plaster or a splint may be a matter of great difficulty. A plaster-of-Paris casing applied in sections is often of value as being more precise and dependable. Figs. 17, A and 17, B show a fracture-dislocation of the ankle, with backward and inward displacement of the foot in relation to the leg. Fig. 17, C shows that the reduction and fixation in plaster have been unsuccessful. While the casing was being applied a momentary slackening of the hold or an alteration of the position of the surgeon's hands had allowed the corrected position to be lost. A second attempt was made. The first section of the plaster was applied from a point two fingers'-breadths above the level of the ankle to the mid-thigh (Fig. 16). The second section was applied to the foot, of the dimensions and extent of a shoe. This left the ankle free. The two casings were allowed to set. The manipulations to secure reduction were then made by grasping the two casings. An assistant then united the two plasters by the turns of a third bandage. Fig. 18 shows that reduction had been secured by this means. The final result was excellent, the patient walking as well as ever in three months' time.

FIG. 18.



Shows perfect reduction obtained by method illustrated in Fig. 17. Figs 16–18 are taken from the *British Journal of Surgery*, October, 1924.

## V.—REMOTE RESULTS OF TREATMENT.

BY S. T. IRWIN, M.CH. R.U.I., F.R.C.S. EDIN.,
HONORARY SURGEON, ROYAL VICTORIA HOSPITAL, BELFAST.

I HAVE assembled statistics from the records of the Royal Victoria Hospital, Belfast, during the two years 1923–24. The figures are based upon a consideration of all the cases of fracture at the ankle admitted to the wards of the hospital during these years. They have been treated in the various surgical wards to which fractures are admitted as emergency cases on the "take-in" day. There were during the two years a total of 75 cases. These were communicated with by letter and invited to answer a number of questions, the main object being to find out whether or not the patient had returned to work. Where no replies were received the addressees were visited. In this way 62 cases were located out of a total of 75, and of these 62 cases five were found not to be working and two were dead from causes unconnected with the injury. Of the five who were out of work one had worked until he developed an ulcer of the leg. This case will be referred to later.

The important questions to decide were: (1) whether or not the patient was at work; (2) the total period of incapacity. It was not possible in the time to go fully into other questions, such as whether the patient suffered pain, whether there was any deformity, or whether the patient was lame. Investigations of case-sheets and X ray films supplied the data upon which the cases were classified, it having become obvious early in the investigation that many of the diagnoses were faulty. The term "Pott's fracture" was used in the records to include a very diverse group and so, more or less, arbitrarily the following subdivisions of the fractures was made into four types.—

Type A, "*Pott's Fracture.*"—To include those cases in which there was a fracture of the fibula near the lower end associated with displacement of the foot outwards and some definite injury to the inner ankle as well.

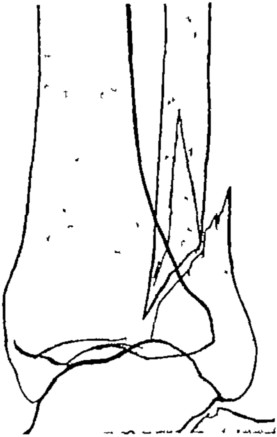
Type B.—*Fracture of the external malleolus* below the tibio fibular ligament, the internal malleolus remaining intact. No doubt this group will include some cases which upon more precise and prolonged investigation will be found to be really examples of Pott's fracture, but in none of them was there obvious displacement of the foot.

Type C.—*Fracture of both malleoli* involving the joint on both sides.

Type D.—*Various fractures* usually associated with *considerable comminution* of the tibia and fibula. This group includes two cases of "Dupuytren's fracture."

This classification was found to have certain advantages—for example, all fractures included under Type B gave uniformly good results, probably because there was no displacement of the foot; their stay in hospital was brief, the average for the whole group being just over a fortnight.

FIG. 19, A.



Pott's fracture showing gross deformity after attempt at fixation in splints. (Mr H. P. Malcolm's case.)

*Compound Fractures.*—So far as the records go only three cases are known to have been compound. All of these were able eventually to return to work, but they are associated with a very prolonged period of incapacity—one for 70 weeks and another for 104 weeks.

Taking the types in order—

1. Under Type A 30 cases occur in the records. Twenty of these were followed up and 19 were at work.

The only case of this type not at work was admitted on Christmas Eve, 1924, profoundly drunk. His age was 60. He had a wound over the inner ankle which, however, did not appear to communicate with the seat of the fracture. He was a saddler by occupation. Within the last few days he has been examined. He walks without pain, the movements of the joints are free, there is a very slight degree of valgus. Except for this and for his age there seems to be no reason why he should not do a saddler's work.

2. In Type B, fractures of the external malleolus without displacement, the records show 14 cases. All these were found and all were at work.

3. In Type C, fractures of both malleoli, involving the joint on both sides, there were 11 cases. Eight of these were found and seven were at work.

The eighth case, a young woman aged 26, was examined. The position of the foot was good; there was no obvious cause to be found for her alleged disability nor was she complaining of pain or lameness.

4. Type D. There were 20 cases in this group of whom 18 were found. Three of these were not at work.

The first was a man aged 40, whose injury occurred two years and two months ago. The fracture was 4 inches above the external malleolus with comminution of the tibia. The result of this case was anatomically bad, especially as regards alignment, there being marked adduction at the seat of the fracture, some arthritis in the ankle-joint, considerable pain, and lameness. Added to the bad alignment of this there was also synostosis between the bones above the seat of the fracture.

The second case under this type not at work was a woman aged 56, off work for one year and six months, whose fracture affected both bones complicated by the opening of the ankle-joint. The foot was in a position of equinus and there was considerable ankylosis and faulty alignment.

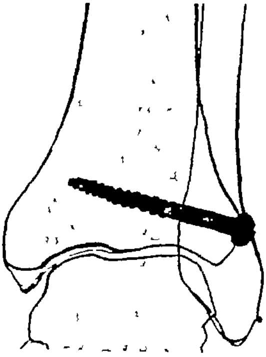
The third case in this type has worked but has had recently to discontinue on account of an ulcer developing over the subcutaneous part of the tibia. He is a young man and the accident was caused by his being thrown off a motor bicycle, the foot striking the mudguard of a motor-car with which the bicycle had collided. This man had a compound comminuted fracture at the lower end of the leg bones. All the structures behind the internal malleolus were divided. As the result of treatment he had ankylosis both of the ankle and the subastragaloid joints but comparatively free movement in the anterior part of the foot. The complication of an ulcer at the seat of one of the old wounds over the subcutaneous part of the tibia is very serious; such ulcers are prone to recur, to cause a subjacent periostitis, and it may yet result in amputation.

These figures are grouped in the following table. Excluding two cases dead there were 60 cases found.

| Type of fracture | Found. | Working. | Per cent. |
|---|---|---|---|
| Pott's | 20 | 19 | 95·0 |
| External malleolus . . | 14 | 14 | 100·0 |
| Both malleoli . . | 8 | 7 | 87·5 |
| Various | 18 | 15 | 83·3 |
| Total . .. | 60 | 55 | 91·6 |

Next the average time off work in each of the types was considered. The small number of the cases makes the results less valuable, the best average period of disability occurring in Type B, where the average is 20 weeks and the average stay in hospital 15·6 days. The second best occurs in Pott's fractures, with the average period of disability at 22 weeks. Here the figures are arrived at from the consideration of 19 cases. For the fractures of both malleoli involving the joint on both sides the period of incapacity over 7 cases amounts to 38 weeks on average. This period seems unduly prolonged, but the group happened to contain a very high proportion of elderly patients. For the comminuted fractures of the tibia and fibula over 16 cases the average period of incapacity amounted to 28 weeks.

FIG. 19, B.



Same fracture after fixation by a single screw nail.

As to the method of treatment in these cases, out of a total of 75 cases only 4 had an open operation, 3 primary and 1 secondary. The custom in the Belfast school has been to treat the majority of these fractures on a Cline's splint with anterior and posterior splints, as recommended by the late Prof. Gordon. They are usually reduced under an anæsthetic. It has several advantages: 1. It allows the leg to be treated with the knee flexed. 2. The splints being of wood allow an X ray photograph to be taken after the fracture has been set. 3. It provides for maintaining full adduction of the foot. 4. With Gordon's anterior and posterior splints both pes equinus and backward displacement of the heel are prevented. 5. Massage can be used early without risk of displacement, the limb resting on the outer splint. In a few cases belonging to Type D the Cline's splint was discarded in favour of a Thomas bed splint with Sinclair foot-piece. One surgeon prefers the use of moulded plaster-of-Paris to the Cline's splint.

A special word is necessary for the three cases who had primary operations.

The first of these was a torsion fracture of the Pott's variety with an oblique fracture immediately above the external malleolus in which it was found impossible by splints alone to maintain correction (Figs. 19, A and B). Here a long screw nail was introduced to bind the malleolus to the tibia above the level of the joint after full correction had been obtained. This nail was removed under local anæsthesia a fortnight later. The second case was a comminuted fracture, which after several attempts at re-position had failed was treated by wires encircling separately the tibia and the fibula. The third case was the compound fracture already referred to. As Mr. Platt has said, "This is not, strictly speaking, a fracture of the type which I have dealt with and therefore the fact that it was operated on can hardly be used as an argument against conservative as compared with operative methods."

The conclusions arrived at from a consideration of the 60 consecutive cases are as follows: 1. The results of conservative treatment combined with operation in specially selected cases would seem to offer an efficient method for indirect violence fractures at the ankle—in the series of 60 consecutive cases 91·6 per cent. being at work. 2. That the period of incapacity in all the cases, extending as it does to 20 weeks in a simple fracture of the external malleolus to double this period in some of the other fractures, seems to be unduly prolonged. 3. With a few exceptions the chances of the patient returning to work after fracture in the neighbourhood of the ankle-joint is comparatively good. 4. Fractures involving the ankle-joint are seldom compound. If fractures in this region be compound it is evidence in favour of a direct violence fracture. 5. Disability following fractures in this region is due to bad alignment of the fragments, to synostosis of the bones, or to arthritis in the joint. 6. Patients over 50, and especially those over 60, have a more prolonged period of incapacity and much less chance of returning to work at all than younger patients. 7. The prognosis in cases of men drawing workmen's compensation and in injuries due to motor accidents seems to be less favourable than in fractures of other sorts, the date of the industrial labourer's return to work being often decided by his shop steward or his branch secretary and not by his medical adviser.

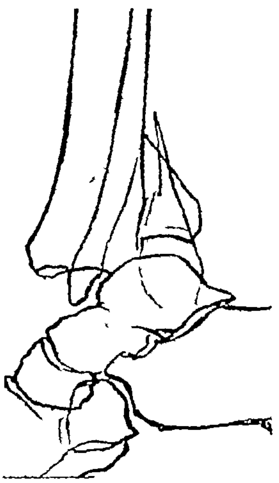
## VI.—MANIPULATIVE TREATMENT.

BY R. OLLERENSHAW, M.D.MANCH., F.R.C.S.ENG.,
ORTHOPÆDIC SURGEON, SALFORD ROYAL HOSPITAL, AND
ROYAL MANCHESTER CHILDREN'S HOSPITAL.

ON the practical aspect of this question I would like to say that I have no bias either in favour of open operation as opposed to more conservative means of treatment, or against it. I am strongly of opinion that operation should be reserved for those cases where satisfactory apposition and maintenance of that apposition cannot be achieved by manipulation and the usual splints or plaster.

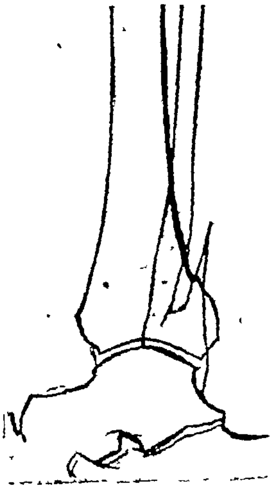
In the fracture clinic of my orthopædic department at Salford Royal Hospital I have had admitted to my wards during the past six months 43 cases of fracture of the long bones. There have been 11 operations only during that period. Five of these were cases sent to me "second-hand"—mal-union or non-union of fractures dating back three months to two years, so that only six primary open operations were done, and I find that with each succeeding year I do fewer primary open operations on fractures. The following are two cases of the worst type of ankle fracture which show completely satisfactory reduction by manipulation. The first (Fig. 20, A) was a very severe type of Pott's fracture and after reduction (Fig. 20, B) there is still a small gap between the edges of the fibular fracture. This is rather more than the gap in one of the cases just mentioned where operation was recommended. I do not think operation should be done here, and in this case of mine the end-result was perfect. Although I agree that a good reduction of the deformity is essential, it is not necessary to secure the most absolute precision in order to get complete return of function. Fig. 21, A shows the nearest approach to what I understand by a "Dupuytren fracture" seen in my department in seven years, and yet, although the displacement is so gross, the reduction (Fig. 21, B) shows good apposition, though not perfect, and the end-result was in every way excellent.

FIG. 20, A.



Ankle fracture with gross displacement.

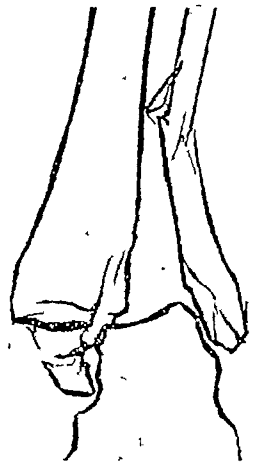
FIG. 20, B.



After manipulative reduction.

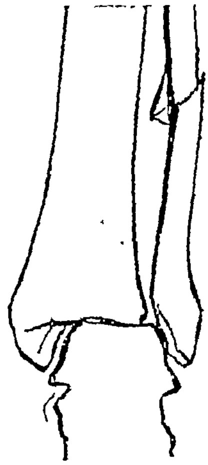
I believe that a very useful aid in difficult compound fractures above the ankle where the tibial diaphysis is projecting through the skin is to reduce the fracture and to maintain its position by plating the fibula.

FIG. 21, A.



Ankle fracture with gross displacement (Dupuytren type).

FIG. 21, B.



Same after manipulative reduction.

Through a small incision over the fibula a plate is fixed holding the fibula and controlling the lateral displacement perfectly. After healing of the wound has occurred and the fracture has become steady—four weeks later—the plate is removed under local anæsthesia. It has served its turn, and I believe that most plates used so close to the skin as this give trouble eventually.

# PARIS.

(FROM OUR OWN CORRESPONDENT.)

### *Stricture of the Œsophagus in Old People.*

THERE is one form of œsophageal stricture that has up till now escaped description in the text-books, but which cannot be rare, since Dr. Guisez, of Paris, has succeeded in collecting about 50 cases. This variety is always a result of improper mastication, whether this be due to bolting the food or lack of teeth. It is now proved that the œsophagus takes an active part in deglutition and that if it receives a badly prepared bolus of food it contracts vigorously. These spasms prevent the food passing down and this sets up inflammation of the œsophageal walls, œsophagitis, and consequent inflammatory stenosis. This innocent form of constriction is particularly interesting to recognise because it is usually mistaken for carcinoma of the œsophagus, which it resembles clinically. Œsophagoscopy alone can establish the correct diagnosis. The stenosis is really very serious and leads to complete dysphagia. Once the diagnosis is satisfactorily made, however, it is possible to begin treatment by local dilatation which will abolish the disability.

### *Pericardotomy.*

In a paper addressed to the Société de Chirurgie, Plisson and Rieux advocated more general resort to pericardotomy in cases of sero-fibrinous pericarditis. They presented a case in which grave signs of cardiac collapse required intervention. Operation was done under local anæsthesia, with the patient in a half-sitting position. The incision in the pericardium was flap-shaped. An extensive accumulation of serum and false membrane was evacuated from behind the heart. Marked tachycardia and arrhythmia soon became tranquil. The pericardium was left open, healing was uneventful, and the patient was discharged on the fifteenth day. In some cases secondary infection and prolonged fistula may occur, but this possibility does not contra-indicate the treatment described.

### *Pathogenesis of Adams-Stokes Syndrome.*

It is generally believed that the Adams-Stokes syndrome (slowing of the pulse with attacks of dyspnœa) indicates a lesion of the bundle of His, which forms a liaison between the auricle and ventricle. Dr. Géraudel, of Paris, however, has studied a case of Adams-Stokes disease and has made a series of 1200 thick sections, each of seven-thousandths of a millimetre, without finding any lesion whatever in the bundle of His. A complete investigation of the arterial supply of the heart has, on the other hand, led him to conclusions which support a theory which he had previously formed. From the results of other research he had, in fact, come to the opinion that the auricle and ventricle contract independently. Each chamber of the heart is controlled by a specific structure, which forms a kind of connexion or motor centre (plaque motrice) placed between the nervous system and the heart muscle. There is one motor centre for the auricle (the sino-auricular node or node of Keith and Flack) and one for the ventricle (the node of Tawara, bundle of His, or network of Purkinje). Each centre is supplied by an end artery. The activity of the centre, and in consequence the rhythm of the corresponding chamber of the heart, is a function of the quantity of blood passing through the artery; thus an increase in the supply produces a rapid beat and a decrease produces slowing. The slow ventricular rhythm of the Adams-Stokes syndrome is a result, then, of some obstruction at the level of the artery supplying the auriculo-ventricular node. Working on this original hypothesis, Dr. Géraudel looked for the obstruction and found it. Immediately above the point where the artery running to the auriculo-ventricular node branched off the artery to the septum showed a patch of endarteritis which considerably narrowed the lumen of the vessel. The discord of rhythm in Adams-Stokes syndrome is not, therefore, due to a dissociation between the auricle and ventricle along the connecting band which the bundle of His is supposed to form. The auricle is never directly associated with the ventricle. The difference in rhythms is a result of unequal blood-supply to the motor centres; when the blood-supply to the auriculo-ventricular node is reduced the rate of beat of the ventricle becomes slower.

### *Pyrenean Wool in Orthopædics.*

At the Faculté de Bordeaux Pyrenean wool has been in use for 25 years as a padding for splints and other orthopædic apparatus, serving thus instead of the usual jersey or tricot material. The Pyrenean material is not displaceable, forms no folds, and does not wrinkle. Both the local profession and visiting surgeons find it of great excellence.

### *Courses at the Hôpital Cochin.*

At the official opening of his clinical course at the Hôpital Cochin Prof. Widal, discussing bronchial dilatation, paid a most eloquent tribute to Laënnec, "the father of French clinicians," whose four cases, he said, practically covered the subject, save for the modern laboratory methods which now serve but to confirm his views. On Jan. 11th two complementary medical courses will begin at the medical clinic of this hospital. The first will deal with nitrogenous retention, urea of the blood and urine, determination of the Ambard constant, hypertensive states, retention of chlorides, diagnostic technique in diabetes, and thorough discussion of the examination of the cerebrospinal fluid. The second course will be devoted to hepatic affections and their diagnosis, duodenal tubage, digestive hæmoclasis, diagnostic technique in the several typhoid diseases, fixation, flocculation and skin reactions, cyto-diagnosis in pleural effusion, and the technique of basal metabolism. The lectures and demonstrations will be held at 2 P.M. daily and will continue until Feb. 3rd. A fee of 100 francs is asked for each course.

Prof. Marchoux, of the Pasteur Institute, well known for his contributions on fowl spirillosis, yellow fever, leprosy, malaria, and other subjects in tropical, colonial, and maritime medicine, was elected member of the Académie de Médecine on Dec. 22nd.

By presidential decree, Profs. de Lapersonne, Hutinel, Pierre Marie, Charles Richet, Letulle, Chauffard, and Weiss have been named honorary professors at the Faculté de Médecine.

The Paris municipal council has fixed new fees for hospital service in 1926. The daily fee for medical service will be 23 francs 32 centimes and for surgical and obstetrical service 24 francs 26 centimes. For hospitalisation of occupational accidents medical service will cost 30 francs 30 centimes, and surgical service 31 francs 53 centimes per day.

The Seine General Council has just taken up the question of securing a sufficient supply of convalescent serum for prophylactic use against measles. Thus far the supply of such serum has been limited to one or two hospitals where Debré and his associates have been active, and extension of the benefits obtained by using serum from convalescent cases of measles has been greatly desired for some time.

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STAFFORDSHIRE GENERAL INFIRMARY: NEW OPERATING THEATRE.—A new operating theatre, which has been provided at a cost of about £5000, was recently opened by Sir John Bland-Sutton. In his opening address he reviewed the progress of surgery from pre-anæsthetic days, when strong assistants held the patient, to the present time, and remarked on the advantages which resulted from the harmonious working together of the hospital board of management and the surgeons. From this combination three things followed—namely, security for the patient, welfare for the community, and honour for the institution. The new building has been erected on the west side of the infirmary, with a northern light, and the accommodation includes a small theatre for septic cases, an anæsthetic room, and a preparation room. The equipment is of the most modern character. The Earl of Lichfield, president of the infirmary, presided, and members of the medical and surgical staff of the infirmary were present with their wives.

# The Services.

## PROMOTIONS OF MEDICAL OFFICERS.

The following list of half-yearly promotions was issued with the New Year Honours on Jan. 1st:—

*Royal Naval Medical Service.*—Surg. Comdr. R. W. B. Hall to be Surg. Capt., and Surg. Lt.-Comdr. A. E. W. Hird (Royal Naval Volunteer Reserve) to be Surg. Comdr.

*Royal Air Force.*—Squadron Leader F. C. Cowtan to be Wing Comdr., and Flight Lts. G. S. Ware, E. F. N. Currey, C. A. Meaden, and F. E. Wilson to be hon. Squadron Leaders.

## ROYAL ARMY MEDICAL CORPS.

Cols. L. F. Smith and H. O. B. Browne-Mason, late R.A.M.C., retire on retd. pay.

Lt.-Col. and Bt.-Col. W. R. Blackwell, from R.A.M.C., to be Col., vice Col. H. O. B. Browne-Mason.

Lt.-Col. G. G. Delap, from R.A.M.C., to be Col., vice Col. L. F. Smith.

The undermentioned Majs. to be Lt.-Cols.: D. Ahern, vice Lt.-Col. and Bt. Col. W. R. Blackwell, and B. H. V. Dunbar, vice Lt.-Col. G. G. Delap.

Capt. J. W. Hyatt is secd. for duty with the Sudan Def. Force.

Capt. J. Crean to be Temp. Capt. and temporarily relinquishes the rank of Capt.

Temp. Capt. G. L. K. Finlay relinquishes his commn. on account of ill-health and is granted the rank of Capt.

### RESERVE OF OFFICERS.

Lt. A. H. Levers, from Welch R., R.A.R. of O., to be Lt.

### MILITIA.

Capt. T. O. Graham to be Maj.

### TERRITORIAL ARMY.

R. Riley and G. B. W. Walker to be Lts.

## INDIAN MEDICAL SERVICE.

The King has approved the retirement of Lt.-Col. J. L. Marjoribanks.

Capt. J. W. Van Reenan to be Maj.

Rochiram Udhamdas Hingorani, Janardan Madhav Gole, and Cheruvari Kottieth Lakshmanan to be Temp. Lts.

## DEATHS IN THE SERVICES.

Surgeon Rear-Admiral John C. Birkmyre Maclean, C.B. (retd.), who died on Christmas Day at his residence, 12, Penlee-gardens, Devonport, at the age of 76, was the son of the Rev. A. Maclean, D.D. Born in 1849, he received his education at Aberdeen University, where he graduated in medicine and surgery in 1871. He entered the Royal Navy as a surgeon in the following year and served for ten years as surgeon of the *Alexandra*. He was at the bombardment of Alexandria (specially promoted to staff-surgeon, Egyptian medal, with Alexandria clasp, and the Khedive's bronze star). He became fleet-surgeon in 1890, deputy inspector-general in 1898, and inspector-general of hospitals and fleets in 1903. For three years he was in charge of the Royal Hospital at Stonehouse, Plymouth, and retired in 1907. On the outbreak of the war, being then 63 years of age, he returned to duty and was appointed to the *Vivid* at Devonport, for the Naval Transport Service, and in January, 1917, he was gazetted a C.B. He was made a surgeon rear-admiral on the grant of military titles to the branch in 1918. He married, in 1802, Maude, eldest daughter of Mr. E. Hewlett, of the Priory, Totnes, who survives him with one son.

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International Medical Cruise in the East.—Owing to the success of its last cruise the *Bruxelles Médical* has decided to charter a 12,000-ton steamer for another voyage at reduced rates for doctors and their families. The rates for medical men, it is announced, are: First class, $185; second class, $120; third class, at greatly reduced rates. The third class is intended for medical students who will be accommodated in six- to eight-berth cabins but will partake in the life on board of the first-class passengers (though not of their meals). The steamer will leave Marseilles on March 17th and will return on April 13th. She will visit Naples, Malta, Piræus, Constantinople, Smyrna, Rhodes, Cyprus, Beirout, Jaffa, and Alexandria. Easter Sunday may be spent in Jerusalem. Applications should be sent at once to Dr. Bernard, 62, Rue Froissard, Brussels.

# Correspondence.

"Audi alteram partem."

## THE EXTRINSIC ORIGIN OF CANCER.

*To the Editor of* The Lancet.

Sir,—I should like to convey to Dr. William B. Coley my appreciation of the kind and generous way in which he has commented on our work in your issue of Dec. 26th last. In his words may be read the spirit of the real investigator—one who is ready to welcome the truth wheresoever and by whomsoever it may be found. Dr. Coley's own splendid record of endeavour in the treatment of malignant disease makes his words the more graceful. I gladly accept the opportunity offered by his letter of trying to clear away some misconceptions that appear to exist in regard to our work.

In two of the addresses[1] on the subject that I have delivered in the last two years I have endeavoured to present a simple yet complete summarised account of our views and of our investigations as they have progressed. On going through these papers I cannot find any omission of importance, or anything that should not be clear to those wishing to repeat our work. As a matter of fact, it would be possible to dispel all the misunderstandings that have arisen by direct quotations from the text of our published papers. Presumably, however, these have been read, though the details have not been completely grasped; consequently detached statements seem now to be required in order to make certain points clear.

First, Dr. Coley and I are not so far apart in certain views as he appears to think. He implies that I rule out bacteria in the ætiology of cancer; this is far from being the case. The essential principle in our working hypothesis is that many extrinsic causes—infective agents, chemical substances, X rays, and the rest—as well as intrinsic factors, such as senescence, *are all capable of producing a common condition of lowered vitality in the cell*, as the result of which malignant neoplasia may develop (vide infra). From this it will be clear that I have not for a moment myself "ignored or cast aside" the work of those who have attempted to assign to cancer a bacterial origin; I have merely stated that this is only one of many so-called "causes." I say "so-called causes" because, in my opinion, they are predisposing factors rather than actual causes in that these numerous agents can all produce a certain precancerous condition in the cell, which may or may not go on to cancerous development. It is possible that Dr. Coley has in his mind the further change from the common precancerous condition mentioned to malignant neoplasia as intrinsic; and, of course, it must be, and is. But this is a stage further than that produced by the predisposing factors, and there need be no reason for confusion. This explanation should dispose of the idea that I believe intrinsic factors alone are concerned in the onset of cancer.

Secondly, however plainly I have endeavoured to expound our working hypothesis, it does not appear to be generally understood. As stated in my last address, there can be no doubt that whatever the predisposing causes—the causes that lead to the common precancerous condition in the cell—the malignant neoplasia that may supervene is a *reversionary, and therefore specific, growth process* in whatever tissue it may arise. In these circumstances it has been essential to look back upon the beginning of growth in mammals—an interesting study in relation to cancer. Here was seen at once evidence of a normal malignant process—the invasive nutriment-seeking faculty of the trophoblast. This was considered alongside the following facts: first, as malignant neoplasia develops in any situation there is an increasing tendency of the cells to revert to the type seen in the earlier stages of development of the tissue concerned—a going back, as it were, to the trophoblastic type with all its powers of invasion and destruction; and, second, in chorion epithelioma alone is the malignant tissue an exact, and unvarying, reproduction of the tissue from which it has arisen—a tissue normally malignant and the most primitive in type. This retrogression on the part of somatic cells would be impossible if the cells were not free of differentiation-control; *consequently long before* reaching the trophoblastic phase they exhibit all the potentialities of it. I need not refer to the body of evidence in support of this view.

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[1] The Lancet, 1924, i., 267; idem, 1925, ii., 1003.

So with the third misunderstanding, the last with which I propose here to deal, Dr. Coley compares lead with copper, and implies that the mode of action of the two in regard to cancer is similar, but more pronounced in the case of lead. It is not surprising, then, that many who do not read very carefully say, "Oh, yes, lead—another metal," as though we had simply tried and used lead because it is a metal. These critics also appear to think that there is a special virtue in heavy metals. Now I have repeatedly made it clear, or have tried to do so, that lead has been employed simply and solely because it has a definite effect on the chorionic epithelium *in particular*, and *on growth* generally—an effect which differs from that of the other metals tested, even though heavier than lead. The investigations, based on the working hypothesis described, had been in progress a considerable time before the use of lead was contemplated; and then only because the biological substance, probably fœtal, that normally checks the growth of the *chorionic* epithelium could *not* be isolated, as we still hope it may be. In other words, lead is only a substitute, and probably a poor one, for the biological inhibitor of the growth of the chorionic epithelium that eventually may be found. In spite of what Dr. Coley says, the fact that lead appears to have a similar effect on malignant cells supports rather than disproves my views as to the mechanism of malignant neoplasia, even without the backing, which exists, of a body of other evidence.

How willingly we all must echo the sentiments contained in the last paragraph of Dr. Coley's letter! Yet, at the same time, with so much evidence, not only scientific but also that of the history of cancer research, against the solution of the problem on the hypothesis of a specific cause, surely it is not unwise to open up another line of attack as we have done.

I am, Sir, yours faithfully,

Liverpool, Jan. 2nd, 1926. W. BLAIR BELL.

*To the Editor of* THE LANCET.

SIR,—With the argument of your distinguished correspondent, Dr. William B. Coley, of New York (Dec. 26th, p. 1358), many must agree. Even those who cannot concur in Prof. Blair Bell's views on the nature of cancer must acknowledge the significance and value of the curative results which he and his colleagues have obtained with colloidal lead. With Glover and Scott of America they share the credit of having opened out to us new and proved methods of treating cancer. Scott has recently[1] reported 11 cases of cancer where tumour masses have disappeared and ulcerated surfaces have healed under the exhibition of the serum of horses immunised against the pleomorphic microbe described independently by Glover and myself. These striking results constitute, in my opinion, the most significant contribution to the non-surgical treatment of cancer so far published. Scott had previously confirmed our view by isolating the Young-Glover microbe from all classes of cancer and with it producing malignant epithelial tumours in animals at the point of inoculation.[2] Loudon and McCormack,[3] of Toronto, have published similar confirmatory results and, within the past few days, in a personal letter I have received further confirmation from another American laboratory. In addition, Nuzum has recently produced a diffuse lymphomatous lesion in mice by the inoculation of the pleomorphic microbe which he obtains regularly from carcinoma, and has thus *confirmed my experimental findings* (1922) and added support to the view which I have urged that this "pseudo-leukæmic" lesion is in reality a diffuse malignancy. Maud Slye's experimental investigations, pursued from an entirely different angle, point to the same result. I have elsewhere shown how these findings throw a flood of light on the whole leukæmic process and have led to the discovery in the *leucocytes in human leukæmia* of a pleomorphic microbe similar to that previously found in the cancer cell.[4]

*This multiple confirmation* of the pleomorphism of the cancer parasite must lead speedily to a coördination of much effort which is at present scattered and apparently contradictory. Already its fruit is seen in a new and hopeful therapeutic measure. It is obvious that Nuzum's micrococcus is identical with the micrococcal variant of the cancer microbe which I described in 1921, and it follows, also, that the bacillus with which Blumenthal in Berlin (1924) has obtained positive experimental results, which have been confirmed elsewhere, and that the ultramicroscopic form which Blumenthal has found it necessary to predicate and which Gye and Barnard recently claim to have cultivated and photographed, are *all identical* with the corresponding forms of the microbe which I described in 1921. The sooner we face these issues squarely the sooner shall we be equipped for the tasks that lie ahead. A host of workers have shown that a pleomorphism similar to that of the cancer parasite is possessed by other micro-organisms which, like it, can each live an independent existence as coccus or bacillus, or filterable virus, &c. In the hands of Calmette and his co-workers the pleomorphism of the *B. tuberculosis* is leading to unexpected results; others have shown that the *Rickettsia prowazeki* and the *B. proteus* (X 19) of typhus are variables of one and the same microbe, and so on, and to those who are in touch with these big new developments it must seem likely that pleomorphism is behind the bacterial chaos of influenza, small-pox, measles, &c.

I am, Sir, yours faithfully,

Edinburgh, Dec. 31st, 1925. JAMES YOUNG.

## THYROID GLAND AND CALCIUM THERAPY.

*To the Editor of* THE LANCET.

SIR,—In text-books one finds thyroid gland very generally recommended for the treatment of chilblains. In my opinion any benefit derived is from the contained parathyroid, and in my *experience the administration* of thyroid often causes chilblains where they have not previously existed. At the present moment I have two patients, middle-aged women, under treatment by small doses of thyroid (gr. i. fresh gland daily) for slight though quite definite symptoms of myxœdema, which are relieved by taking this dose, but quickly recur on its intermission. They both tell me that since taking thyroid they have suffered considerably *from* chilblains, although before taking it they were immune to the trouble since the days of childhood. In both cases, while *admitting* other positive benefits, they blame the thyroid for the chilblains, and I think they are right. There is no other altered circumstance in their lives which might account for the chilblains. They have both taken thyroid fairly regularly for two years and have suffered from *chilblains this winter* and last. One of them took no thyroid September, 1924–February, 1925, and did not begin her chilblains till March, 1925. Both cases are relieved by taking calcium lactate.

Sir James Barr[1] holds that in chilblains the fixed *line in the circulation* is not diminished, so that there is no true œdema but the free calcium ions are diminished. Since thyroid secretion has the effect of increasing the calcium metabolism and the excretion of calcium, one would expect an excessive dose to produce symptoms of deficient calcium in the blood. My patients, however, are taking only just sufficient thyroid to keep the myxœdematous symptoms in check. The calcium content of the blood is said[2] to be diminished in both hyper- and hypo-thyroid states, but I have not known a case of Graves's disease with chilblains. I imagine this is due to the good peripheral circulation and the fact that the parathyroids are also over-functioning. I have also a case of pituitary tumour, taking thyroid gland, gr. v.–x., daily in the hopes of influencing the growth of the tumour. She does not suffer from chilblains or show other signs of calcium deficiency (metrorrhagia, &c.), but in her case the parathyroids are in all probability fully functional.

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[1] Northwest Medicine, October, 1925.
[2] Ibid., April, 1925.
[3] Can. Lancet and Practitioner, November, 1925.

[4] Edin. Med. Jour., 1922.

[1] Barr: Brit. Med. Jour., Sept. 24th, 1910.

As cases of myxœdema (not those following thyroid extirpation where the parathyroids are left) are probably suffering from atrophy of both thyroid and parathyroid, and since the modern preparations of thyroid gland contain little or no parathyroid, it seems rational that these patients should be treated with preparations of both glands. Probably any good results in the past obtained from giving thyroid in chilblains were due to the contained parathyroid, which, I understand from the makers, is now very generally extracted. I am, Sir, yours faithfully,

Walmer, Dec. 30th, 1925. D. C. NASMYTH.

## PSYCHO-ANALYSIS AND SUICIDE.

*To the Editor of* THE LANCET.

SIR,—One hears occasionally of suicide being ascribed to psycho-analysis, but a recent case appears to be the first in which the assertion can be examined. In the *Times* of Dec. 29th is the report of an inquest at which a medical witness said the patient had been taken to a psycho-analyst, "but the treatment proved too great a strain and the damage was intensified and produced a morbid condition of introspection and, through laying bare his subconscious mind, injured his mind very greatly, and he had to give up the treatment." Also, "the cause of the condition to which he arrived was the psycho-analysis." There were references to analysis as a "dangerous weapon."

I am a physician and use whatever means I consider suitable to the individual case. This gentleman came to me, with his father, on Nov. 16th. My notes of the interview record his physical condition and a few symptoms. I told his father that I did not consider analysis was desirable, but suggested that he should come to me for a few talks concerning his troubles. He came again on Dec. 7th. My notes show that nothing of importance cropped up. On the 9th he talked spontaneously of fairly recent events to which he gave an exaggerated emotional value that I sought to minimise. On the 10th he said that his father was not in favour of further treatment. We discussed how he ought to look at his troubles and handle them in the light of his own temperament, and he parted from me with no indication that the talks had been regarded as other than helpful.

In an analysis many days are spent in going over the patient's ordinary life before analysis proper can begin. The brevity of the treatment in this case is sufficient indication that no analysis was done, and, as I have shown above, none was attempted. These facts speak for themselves, and, apart from them, I will ask your readers to judge the conduct of the medical witness by the ordinary standards of professional conduct as applied to any specialty where psychological questions do not arise.

I am, Sir, yours faithfully,

MILLAIS CULPIN.

Queen Anne-street, W., Jan. 1st, 1926.

*** Comment on Dr. Culpin's letter will be found on p. 79 under the heading of Medicine and the Law. —ED. L.

## GLYCOSURIA AND LIFE ASSURANCE.

*To the Editor of* THE LANCET.

SIR,—Will you, in justice to the assurance company and myself, allow me a brief reply to their statement and your comment thereon? The account given me by the proposer of the method of testing the urine is evidently not correct, but he would not necessarily know that a portion of the specimen had been reserved for further examination. The presence of glycosuria was, however, never in doubt and is admitted. My point was that this was used as a ground for rejection at that time, without examination of the blood, and that when the assurance company were informed of the result of the analysis they refused to modify their attitude. I now have the letters of the company to the proposer before me, and there can be no doubt on that point. My main contention, therefore, remains unchallenged, which is that with so small a quantity of sugar in the urine no estimate should be formed of the significance of glycosuria without examination of the blood.

I am, Sir, yours faithfully,

A. KNYVETT GORDON.

Bedford-square, W.C., Jan. 1st, 1926.

## PROFESSIONAL CRITICISM OF THE GENERAL MEDICAL COUNCIL.

*To the Editor of* THE LANCET.

SIR,—Dr. Layton gives your readers to suppose that, when writing in your issue of Dec. 26th last (p. 1359) on the General Medical Council and professional standards, I "openly state" that I am in the habit of signing false statements. I regret that my letter could have been so misread. May I say that I am not in the habit of signing such statements, although I pointed out the difficulty in which the practitioner is placed, and expressed a hope that the Council should distinguish between technical inaccuracy and fraud or carelessness.

I am, Sir, yours faithfully,

Sevenoaks, Kent, Jan. 3rd, 1926. GORDON WARD.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED DEC. 26TH, 1925.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 178 (last week 180); scarlet fever, 1516; diphtheria, 847; enteric fever, 21; pneumonia, 1329 (last week 1832); puerperal fever, 34; cerebro-spinal fever, 5; acute poliomyelitis, 7; encephalitis lethargica, 34; dysentery, 7; ophthalmia neonatorum, 86. The holiday season no doubt explains the fact that with the single exception of dysentery the number of cases reported is smaller for every notifiable disease this week than it was in the previous week. There were no cases of cholera, plague, or typhus notified during the week.

Of the 178 cases of small-pox, 106 were reported from the county of Durham, 30 from the county of Derby, and 14 from the county of Nottingham.

*Deaths.*—In the aggregate of great towns, including London, there was only 1 death from enteric fever, none from small-pox, 72 from measles, 11 from scarlet fever, 30 from whooping-cough, 36 from diphtheria, and 85 (last week 132) from influenza. In London itself there were 37 deaths from measles, 10 from diphtheria, 21 from diarrhœa and enteritis under two years, and 14 from influenza.

BRITISH CHARITIES ASSOCIATION.—The second annual report, to July, 1925, states that grants have been made to every approved voluntary hospital which applied, and also to those hospitals which coöperated with the British Charities Association during the year. A sum of £19,848 was distributed to hospitals in London, £15,000 of which was handed to King Edward's Hospital Fund, and £10,000 to hospitals and charities outside the London area. At Christmas a supplementary distribution of £20,000 was made to King Edward's Hospital Fund for the London hospitals, and £45,000 to the various hospitals outside the London area, bringing the total since midsummer, 1924, to over £95,000. During the two and a half years since its foundation the British Charities Association has distributed a net total of £121,000.

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[2] Hall: Medical World, Nov. 27th, 1925.

# Obituary.

## LOUISA BRANDRETH ALDRICH-BLAKE, D.B.E, M.D, M.S LOND

WE have already briefly announced the death on Dec. 28th last of Dame Louisa Aldrich-Blake, whose memory will live as a great leader, a wise administrator, and a brilliant surgeon

Louisa Brandreth Aldrich Blake was born at Chingford Rectory on August 5th, 1865, the daughter of the Rev Frederic James Aldrich Blake, sometime rector of Welsh Bicknor, her forbears including a number of Aldrichs holding distinguished positions in the navy She was by birth and character of the stuff of the great leaders of English conservative tradition A landowner herself, she came to understand the duties of administration, sharing the responsibilities of her tenants and loving the soil of her native county It is recorded of her that she had a natural gift for healing, and that at the age of 8 she and her sisters organised an animal hospital to which the villagers brought their sick and wounded pets and that at 10 years she had performed her first operation on one of them No doctor was immediately available in the village, and when she was not much older she undertook more serious duties and set a broken leg before the patient was taken away to hospital Louisa Aldrich-Blake was sent first to a private school at Malvern and afterwards to the Ladies College at Cheltenham, from which she took the preliminary scientific examination of London University Entering the London (R.F.H ) School of Medicine for Women in October, 1887, she graduated in medicine five years later with first-class honours in medicine and obstetrics, again taking first-class honours and qualifying for the gold medal in the B.S. examination of the following year In the two succeeding years she went on to take the higher diplomas in medicine and surgery offered by London University, being the first woman to obtain the M.S degree It was in this year that she was appointed assistant surgeon to the New Hospital for Women (later renamed the Elizabeth Garrett Anderson Hospital), becoming full surgeon in 1902 and senior surgeon in 1910 At the Royal Free Hospital she was the first woman to hold the post [illegible] registrar, and was for several years anæsthetist and lecturer on anæsthetics Soon after the outbreak of war in 1914 she was invited to become consulting surgeon with charge of beds at this hospital At about the same time she organised a group of medical women who were prepared to establish a hospital at Brussels, but, being prevented from so doing organised a unit near Cherbourg at which many Belgian and French sick and wounded were treated. In the autumn of the following year she served under the Anglo-French Red Cross at Royaumont, assisting Miss Frances Ivens and relieving her of a large part of the many operations performed there During 1916 her work at the Royal Free Hospital included charge of surgical out-patients on two afternoons a week, and gradually her mornings were devoted to work in the theatre and surgical wards, where she replaced members of the staff who had gone on foreign service During this period she acted as visiting surgeon to the W.A.A C Hospital at Isleworth

DAME LOUISA ALDRICH BLAKE.

For 20 years Miss Aldrich-Blake had been intimately associated with the administration of the London School of Medicine for Women She was appointed vice-dean to Miss J Cock in February, 1906, and succeeded her as dean in February, 1914 Dr May Thorne who, as honorary secretary of the school, worked with her for 17 years, speaks of her as a wise administrator whose mind was orderly and whose life was arranged for the proper discharge of manifold duties. "Dame Louisa," Miss Thorne writes, "gave everyone the impression that she had ample leisure, for she never hurried, and this in spite of the fact that for many years she worked every night well into the morning hours She had an extraordinary power of undertaking and performing an enormous amount of good work which was of far-reaching usefulness not only for the school, the Elizabeth Garrett Anderson Hospital, the Royal Free Hospital, the Canning Town Settlement, and many medical societies, but also for numerous individual students and medical women. She loved what was good and true The things that made her justly angry were carelessness, leakage of work done at committees, and tale-bearing She often took time to master some problem that arose in the course of her work as dean, but, once grasped, she never forgot any detail of it, even after a lapse of years. No doubt a larger gift of revealing the sympathy that was in her would have made her more widely understood, but to the hundreds of students who passed through the school her unfailing readiness to bear their burdens, her calm mind, self forgetfulness, and steadfastness, will remain an inspiration."

Miss Aldrich Blake was a surgeon of excellent judgment. "From the outset of her medical career," writes Miss Elizabeth Bolton, "she realised the need of long and thorough training for operative work, and how much more was involved in the making of a surgeon than mere manipulative skill. She grasped the supreme importance of anatomy and physiology as a groundwork for surgical work, she had unusual mechanical knowledge and joy in the right use of instruments, her technique was sound, and she ever remembered the sensitiveness of living tissue. To any difficult problem she would give much thought, and, what is perhaps more rare, thought after as well as before action. Her judgment was direct and clear and she had developed unusual keenness of diagnosis

"Miss Aldrich-Blake was one of the first in this country to undertake Wertheim's operation for carcinoma of the cervix, and in 1903 she brought forward the advantages of abdomino-peritoneal resection of the rectum. She got through an enormous amount of work in later years, but, with it all, she never failed to find time to help at once any of her junior colleagues who needed her To her nothing was trivial The small operation as well as the big was intensely interesting and had its claims, and she paid them in full. The personal side of the patient under her care interested her, and she impressed on those under her the insult of daring to deal with patients with [illegible] half one's attention She was, in fact, a great craftsman in the work she specially made her own, and to the end she was a student."

But while herself so sure and good a surgeon, she was determined that others should be so too. "It was characteristic of her," writes Miss L. Martindale, "that no one ever applied to her for help in vain. Women in the past had few opportunities for posts as assistant surgeons. Dame Louisa Aldrich-Blake helped many of them in their early days, and there are many women surgeons now holding important positions and doing brilliant surgery who owe their successful careers to her. A telephone call and a conversation always brought her to their aid. Many is the time she has assisted young surgeons in their first operations on private patients, travelling often at night without thought of personal recognition."

No account of Miss Aldrich-Blake would be complete without some mention of the qualities of heart and mind which made her so much more than a wise administrator and a skilful surgeon. She was first and foremost sincere, upright, and of unswerving principle in the face of difficult problems, confident in herself and yet unusually silent and reticent as to her achievements. She once said she wished human life were longer; there were so many things she would like to do. Her fine brain, judgment, and devotion to work would have ensured success in any field. Lord Riddell, chairman of the Royal Free Hospital, has said truly that had she not been an eminent surgeon she might well have made a distinguished judge, for she had the habit of mind of dealing with every subject on its merits irrespective of her personal interests. Apart from her medical work she was fond of travel, and was interested in every kind of sport. Although not a great reader, she had a freshness in her judgment of political situations which was stimulating to others. Children she loved and instinctively they loved and trusted her. Family relationships meant much to her; that of aunt and nephew, she once said, was one of the most satisfactory in the world.

It was at the jubilee last year of the London School of Medicine for Women that Miss Aldrich-Blake's work was recognised by her appointment as a Dame of the Order of the British Empire, and there has never been an honour granted which was felt to be more appropriate or has been given wider approval.

## RICHARD CATON, C.B.E., LL.D., M.D. EDIN., F.R.C.P. LOND.

AFTER a long and distinguished career in Liverpool, Dr. Richard Caton died at Haslemere, Surrey, on Jan. 2nd.

Richard Caton was born at Bradford, and was educated at Scarborough Grammar School and Edinburgh University, where he qualified as M.B., C.M. in 1867. Three years later he gained the gold medal for his M.D. thesis on the migration of leucocytes, and in 1888 was elected F.R.C.P. Lond., becoming a member of the Council, and Harveian lecturer to the College in 1904. It was in the year following qualification that he settled at Liverpool, where from the first he was prominently associated with religious and civic activities. His professional reputation grew rapidly. At first he worked at the old medical school attached to University College; later he was foremost in the movement which ultimately secured university status for Liverpool. To the end his interest in the University was living and effective. At one time professor of physiology, he succeeded to the office of pro-Chancellor, and in this capacity represented Liverpool at the seventh centenary of the University of Padua. Nor were his civic attainments negligible. As a scientist he was greatly interested in physiology in its relation to the health of the people, and his knowledge of public health made him a most useful member of the City Council and especially of those committees which dealt with secondary education and the housing of the poor. Of these committees he was chairman. His commanding position was recognised when, in 1906, he was elected Lord Mayor. Dr. Caton was physician to several Liverpool hospitals, including the David Lewis Northern Hospital and the Royal Infirmary. He was president of the Medical Institution in 1896-97, and was vice-president of the Liverpool School of Tropical Medicine. Interested in various medical subjects, and especially in early endocarditis, for which he recommended blistering ("Caton's blisters"), he was at the same time a keen classical archæologist, and will be remembered for his writings on Hippocrates, Asklepios, and the Medicine God of the Egyptians. His learning was recognised by three universities, Edinburgh, Padua, and Liverpool, which conferred on him the degree of LL.D., and he was created a C.B.E. in recognition of his work as chairman of the West Lancashire Nursing Service Committee.

"Dr. Caton," writes a correspondent, "never spoke without one feeling the vivid and forceful personality behind his words. He was a revered and commanding figure in every circle where he was known, and Liverpool, no less than Liverpool's medical profession, mourns his loss as that of one of her great men."

Dr. Caton married the daughter of Mr. William Ivory, of St. Roque, Edinburgh, and had two daughters, one of whom is married to Prof. H. A. Ormerod, of the University of Leeds.

## AGNES ELIZABETH HENDERSON, M.B.E., M.D. BRUX., L.R.C.P. EDIN.

Dr. Agnes Henderson, whose death occurred in a London nursing home on Dec. 29th last, was one of the senior missionaries of the United Free Church of Scotland. Daughter of the late Sir William Henderson, LL.D., who was Lord Provost of Aberdeen from 1886 to 1889, and grand-daughter of Mr. George Thompson, M.P., she studied at the London School of Medicine for Women, taking the triple Scottish diploma in 1889 and the Brussels M.D. for practitioners in the following year. She went out to India in 1890, and for 32 years worked unremittingly among the women in the Central Provinces, where she was in charge of the hospital at Nagpur. Even though she went on the retired list in 1922, she continued to live in Nagpur, and busied herself with the responsibility of raising funds from among her Indian friends for a new hospital building. The municipality also came generously to her assistance. During the war years Miss Henderson spent some time in this country as a medical officer among women and girls in munition factories. In 1923 she was made a Member of the Order of the British Empire. She returned to England early last summer and was living quietly in Buckinghamshire.

## JAMES MURIE, M.D. GLASG., LL.D. ST. AND.

AT the age of 93 Dr. James Murie died at Rochford, Essex, on Dec. 21st, having outlived all his relatives.

James Murie was born at Glasgow and studied natural history and medicine at the University, where he took his M.D. degree in 1857. The buildings of the University now stand on land which his father used to farm. Dr. Murie started his adventurous career by going to West Africa to report on mercantile products. Upon his return he became pathologist at the Glasgow Royal Infirmary, and after a few years of desultory teaching, during which he was looking out for another opportunity to go to Africa, made the acquaintance of David Livingstone, J. H. Speke, and other famous travellers, and was appointed medical officer and naturalist to an expedition led by John Petherick, which was to convey stores to Gondokoro, to meet Speke and Grant, who were investigating the source of the Nile. Dr. Murie succeeded on this expedition in making important collections of animals and plants; the fauna and flora of the Sudan was at that time little known. On coming back to England it was his wish to accompany Livingstone on his Zambesi venture, but the appointment went to Dr. (afterwards Sir) John Kirk. In 1865 Murie was made prosector to the Zoological Society, in which occupation he remained for six years. In 1868 he had been elected a Fellow of the Linnean Society of London, and in 1876 he became assistant secretary. He resumed his medical work, and was at one time lecturer on comparative anatomy at Middlesex Hospital and physician to the Bethnal Green Asylum. In 1877 he received the degree of LL.D. from the University of St. Andrews. After succeeding to the post of librarian of the Linnean Society, which he held for eight years, he retired in 1888 to Leigh-on-Sea. Since that time he has led a very solitary life, devoting himself to the study of the fish and fisheries of the Thames estuary. He enjoyed a pension from the Linnean Society, but in his later years was able to publish comparatively little work.

## REGINALD WOOLSEY STOCKS, M.R.C.S. ENG., D.P.H. BIRM.

DEEP regret is felt in public health circles at the untimely death of Dr. Woolsey Stocks, medical officer of health and school medical officer for West Bromwich. He had already made his name as a keen and progressive member of the service, with a special interest in the welfare of mothers and children. As recently as Dec. 12th we commented on his report in which he urged the need for systematic antenatal examination and pleaded for the expenditure of greater care on the well-being of small children.

Born in London in 1882, Dr. Stocks was educated at Dulwich College, at the Universities of London and Birmingham, and at St. Thomas's Hospital. After house appointments at the Queen's Hospital, Birmingham, he became resident medical officer at the Children's Hospital, Birmingham, in 1909. After this he held public health appointments in Wandsworth, and in 1911 was appointed to West Bromwich. For several years Dr. Stocks was one of the hon. secretaries of the National Baby Week Council, and his advice was invaluable to this voluntary body in its many activities. He also took a very active interest in the work of the maternity and child welfare group of the Society of Medical Officers of Health and was its secretary from its institution till the current year, when he was unanimously appointed president, being also the representative of the group on the council of the parent society. Dr. Stocks was gifted with a charming manner, and was able to put forward his views with energy and decision, without leaving the sting of resentment amongst those who differed from him. He was deservedly popular and the public health service is the poorer for the loss of a man with his high ideals.

## DAVID CHARLES LLOYD OWEN, M.D. BIRM., F.R.C.S. IREL.

IN his eighty-second year, Dr. Lloyd Owen, formerly of Birmingham, died at Harlech on Christmas Day. He was descended from an ancient Welsh family deriving its origin from Scissyllt, Lord of Ardudwy, in Merionethshire, and was educated at the University of Birmingham and Paris. Qualifying as M.R.C.S. in 1865, he settled in Birmingham, where he specialised as an ophthalmic surgeon, and where, until his retirement a few years ago, he was surgeon to the Birmingham and Midland Eye Hospital and consulting ophthalmic surgeon to the Hospital for Sick Children and the General Hospital. Dr. Owen took considerable interest in public affairs, and became J.P. for the county of Warwick and a Knight of Grace of the Order of St. John of Jerusalem. He was also president of the Midland Medical Society, and of the Ophthalmological Section of the British Medical Association in 1890. These offices represent only a few of his activities, both medical and social, and his contributions to the literature of ophthalmology were considerable. He translated Giraud-Teulon's book on the eye, published "Elements of Ophthalmic Therapeutics" in 1890, and produced numerous lectures and papers, including the Middlemore lecture, on Pain in Eye Disease, of 1896.

## JOHN PREST WIGHTMAN, M.R.C.S. ENG.

Dr. J. P. Wightman, who died on Dec. 19th at Newby, Scarborough, after a week's illness, was elder son of the late Charles John Wightman, of Rawdon, Yorks. He was educated at St. Bartholomew's, qualifying in 1891, and after holding resident posts at the Hospital for Children, Myrtle-street, Liverpool, and the Sanatorium for Consumption, Bournemouth, he settled in York, where he built up a large practice in the Mount district, and was appointed honorary medical officer at the York Dispensary. He was an active member of the York Medical Society and the Leeds and West Riding Medico-Chirurgical Society, and made several contributions to medical journals on clinical subjects in which he was specially interested, such as empyema in childhood and hæmophilia. Six years ago Dr. Wightman left York and settled in Scalby, entering into partnership with Dr. B. G. Forman. He leaves a widow and one son, who is a medical student at Cambridge.

# Medical News.

UNIVERSITY OF OXFORD.—The following degrees have recently been conferred:—

*Doctor of Medicine.*—H. M. MacKeith.

*Bachelors of Medicine.*—C. W. Simpson, L. J. Barford, F. J. Bach, N. Chilton, S. Howard, and V. H. Brink.

SOCIETY OF APOTHECARIES OF LONDON.—At recent examinations the following candidates passed in the subjects indicated:—

*Surgery.*—S. Douglas, Univ. Coll. Hosp.; E. W. Hayward, Cambridge and London Hosp.; E. Kessel, Westminster Hosp.; B. A. Perritt, Petrograd; I. Rivlin, Middlesex Hosp.; P. H. Row, London Hosp.; F. Smith (Sect. II.), Manchester; and J. A. H. Sykes, Edinburgh and Middlesex Hosp.

*Medicine.*—R. F. Ashkenny, Cambridge and London Hosp.; A. K. A. Carter, Univ. Coll. Hosp.; C. E. Hagenbach, St. George's Hosp.; R. D. Mason, St. Mary's Hosp.; M. Schwartzman, Odessa and Middlesex Hosp.; and F. Smith (Sect. II.), Manchester.

*Forensic Medicine.*—R. F. Ashkenny, Cambridge and London Hosp.; C. E. Hagenbach, St. George's Hosp.; B. D. Jain, Charing Cross Hosp.; S. A. Jocelson, London Hosp.; E. H. Rampling, St. Thomas's Hosp.; C. H. Spencer, Manchester; and J. M. F. Whitby, St. Thomas's Hosp.

*Midwifery.*—A. M. El Mishad, Guy's Hosp.; R. C. Glover, Leeds and St. Bart.'s Hosp.; T. A. Lazaro, St. Bart.'s Hosp.; and J. Shibko, Cardiff.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: R. F. Ashkenny, S. Douglas, C. E. Hagenbach, T. A. Lazaro, M. Schwartzman, and F. Smith.

ROYAL SOCIETY OF ARTS.—A lecture by Prof. J. McLean Thompson on Some General Problems of the Transport by Sea and Conservation in Store of Ripe Fruit will be given at the Society's house in John-street, Adelphi, London, W.C., on Wednesday, Jan. 27th, at 8 P.M. On Feb. 10th Prof. J. C. Drummond will lecture on Modern Views of Vitamins, and on Feb. 24th Mrs. Mary Fishenden, of the Fuel Research Board, will give an address on Domestic Heating.

MEDICAL SOCIETY OF LONDON.—The programme for the second half of 1925–26 session is as follows: On Jan. 11th, at 8 P.M., a pathological evening will be held. On the 25th, at 8.30 P.M., a discussion on Manipulative Treatment in Medicine and Surgery will be introduced by Mr. R. C. Elmslie and Mr. W. R. Bristow. On Feb. 8th, at 8.30 P.M., a discussion on Right Iliac Fossa Pain will be introduced by Mr. H. W. Carson, Dr. A. F. Hurst, and Dr. T. W. Eden. On the 22nd, at 8.30 P.M., a discussion on the Ætiology and Diagnosis of Gall-stones will be introduced by Sir Humphry Rolleston, Mr. R. P. Rowlands, and Dr. Robert Knox. On March 8th, at 8.30 P.M., a discussion on Obscure Pyrexia in Adults will be introduced by Sir Thomas Horder, followed by Dr. C. R. Lakin and others. On the 22nd, at 8.30 P.M., a paper on the Use of Lead in the Treatment of Malignant Disease will be read by Prof. Blair Bell, followed by Dr. J. G. Adami, Sir Lenthal Cheatle, and others. On May 10th, at 8 P.M., a general meeting will be held, followed at 9 P.M. by the annual oration to be delivered by Sir Berkeley Moynihan. The Lettsomian Lectures on the Principles of Treatment in Relation to Diseases of the Nervous System will be delivered at 9 P.M. on Feb. 15th, 24th, and March 15th, by Dr. E. Farquhar Buzzard.

The death is announced of Dr. J. Bryce McMurrich, surgeon on board the Canadian Pacific liner *Melita*. Dr. McMurrich, who was a graduate of Trinity Medical College, Toronto, and was about 50 years of age, died suddenly at Jarrow railway station.

Welfare Centre at Llandudno.—On a site given by Lord Mostyn a maternity and welfare centre, with accommodation for clinic and welfare work, an operating room, and offices, will be erected. On the upper floor there will be five maternity wards. The centre will form part of the local war memorial.

Dublin (83) General Hospital.—The annual dinner of the Dublin unit of the Dublin (83) General Hospital was held on Jan. 2nd in the Royal College of Surgeons, Dublin. Colonel Sir William Taylor, organiser of the hospital, presided, and of the whole unit of 28, 18 were present. Of the remainder four have died, the most recent death being that of Major A. J. Blayney last July.

The King has sanctioned promotions and appointments to the Order of the Hospital of St. John of Jerusalem in England amongst the following members of the medical profession: Colonel Sir George Hastings, V.D., and Surgeon-Captain Montague Henry Knapp, R.N., as Knights of Grace; and Lieut.-Colonel Robert Frazer Standage, C.I.E., I.M.S., Captain Hugh Falkenberg Powell, M.B.E., Dr. George Pugin Meldon, Mr. Seton Sidney Pringle, O.B.E., F.R.C.S.I., Dr. Eustace George Carter, O.B.E., Colonel Francis Darlow, R.A.M.C., T.A., and Dr. Russell Facey Wilkinson, M.V.O., as Esquires.

Royal Patronage for Hospitals.—The Queen has consented to become patron of the Elizabeth Garrett Anderson Hospital in place of the late Queen Alexandra. The Duchess of York has consented to become patroness of the British Home and Hospital for Incurables, Streatham, in place of the late Queen Alexandra. Princess Mary Countess Lascelles has accepted the presidency of the Yorkshire Federation for Maternity and Child Welfare in succession to Lady Irwin, wife of the Viceroy-designate of India. Her Royal Highness will fulfil her engagement to open the new Whitehaven and West Cumberland Infirmary at Whitehaven Castle on Jan. 22nd.

Bad Sanitary Conditions in Elementary Schools.—The medical officer to the Billericay Rural District Council has reported on the conditions found in the church and council schools at Wickford. At the council school, which has 160 children on the roll and has accommodation for 170, one room used as a classroom has no cross ventilation and no fireplace, and the heating by means of a radiator is entirely insufficient. There were only two drinking mugs provided and two clean towels were allowed per week for the whole school. At the church school there was a class of 50 children in a room suitable for 30. The heating was inadequate and the walls were damp. The medical officer's reports have been forwarded to the Essex Education Committee.

Fellowship of Medicine and Post-Graduate Medical Association.—The Prince of Wales's General Hospital, Tottenham, N., is holding an intensive course from Jan. 11th to 23rd. It will include daily morning demonstrations of clinical methods, lecture-demonstrations of groups of selected cases in the afternoons, and work in the general and special departments of the hospital. A special feature of the course will be the afternoon lectures at 4.30, free to general practitioners who are members of the N.E. London Post-Graduate College and to members of the Fellowship of Medicine. The opening lecture will be given by Dr. Eric Pritchard on the Principles of Nutrition. Two special Saturday morning demonstrations will be held at the N.E. Fever Hospital and the L.C.C. Mental Hospital. A series of demonstrations in the diagnosis and treatment of the acute infectious diseases will be given by Dr. Frederic Thomson at the N.E. Fever Hospital on Wednesdays at 2.30 P.M. and Saturdays at 11 A.M. from Jan. 13th to 30th. From Jan. 18th to 30th the Queen's Hospital has arranged a special course on diseases of children. Morning and afternoon sessions will be held daily, and the programme consists of lectures and clinical demonstrations on medical and surgical diseases of children, including all the special departments. From Jan. 18th to 29th there will be an all-day course in cardiology at the National Hospital for Diseases of the Heart. The opening lecture of the Fellowship's new series will be delivered by Dr. Herbert Spencer on Abdominal Palpation in Pregnancy (with lantern demonstration). These lectures are free to members of the medical profession. A copy of each syllabus of the foregoing courses and of the programme of the General Course arranged by the Fellowship may be had on application to the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

Beckett Hospital, Barnsley.—This hospital, which was enlarged in 1912, is to be further extended by the addition of a new ward for women and children. Towards the £22,000 which the work will cost, the local Miners Welfare Committee have granted £12,000, on condition that extra provision is made for casualties and out-patients.

North Staffordshire Medical Society.—A clinical meeting will be held at North Staffordshire Royal Infirmary, Stoke-on-Trent, on Jan. 14th, at 3.30 P.M. Practitioners will be admitted on presentation of card. The president for this year is Mr. E. E. Young, and the joint hon. secretaries Dr. A. W. Gill and Dr. E. C. Myott.

The Sheffield Hospitals.—The report of the Sheffield Joint Hospitals Council for 1924 has at last been issued. During the year there were 428,000 attendances of out-patients at the Sheffield hospitals, which spent nearly £1000 a month on milk and coal alone. The "Penny-in-the-Pound" fund produced over £94,000, but the balance owing to the bankers at the end of the year exceeded £91,000.

Bradford: New Infirmary.—The board of management is about to proceed with the erection of a new infirmary which, in addition to the ordinary medical and surgical wards, will have special departments for X ray, electro-therapy, and artificial sunlight. The total cost is estimated at £500,000, and three-fifths of the amount has yet to be raised.

Unused Health and Unemployment Insurance stamps of the denominations which were in use up to Jan. 4th, 1926, if they have not been affixed to any material, will be accepted at any Post Office in exchange for Health and Pensions Insurance stamps and Unemployment Insurance stamps of the new values. National Health Insurance stamps will not be accepted in exchange for Unemployment Insurance stamps. These arrangements will remain in force up to Jan. 31st.

National Memorial to Queen Alexandra.—The King and Queen have approved the suggestion that the national memorial to Queen Alexandra should take the form of a fund to develop the work of Queen Victoria's Jubilee Institute for Nurses. It is proposed to devote one half of the fund to strengthening and developing the work of the 600 local nursing associations, and a further portion will be allocated to the Nurses' Long Service Fund to provide pensions for Queens' nurses who have served for 21 years.

Psychologists and East African Tribe.—Dr. C. J. Jung, of Zurich, and Dr. H. Godwin Baynes, of London, have arrived in East Africa with the intention of spending six months amongst the Bagishu on Mount Elgon. These people are a mixture of the Bantu and Nilotic races and possess an extensive mythology. By investigating their customs and beliefs Dr. Jung and Dr. Baynes hope to throw light on the subject of the existence of the primitive in all men, whether civilised or not. Unfortunately the work will have to be done through interpreters.

Biddulph Orthopædic Hospital.—The trustees of this North Staffordshire hospital have accepted an offer from the Lancashire County Council to purchase the hospital and estate. The hospital, which was given by Mr. Robert Heath on condition that it should always be used for orthopædic work, was opened by the Prince of Wales in June, 1924, but in less than 12 months it had to be closed owing to lack of public support and the heavy cost of equipment, adaptation, and maintenance. Staffordshire now has no means of dealing with the majority of the waiting orthopædic cases, which are said to be very numerous.

Small-pox in Durham and Rawmarsh.—During the last quarter 630 cases were notified in Durham county in the administrative country area, and 15 in the county boroughs. In the administrative county of Durham during the four weeks of December the number of cases has been 80, 83, 110, and 90 respectively. In some districts in Durham county only about 30 per cent. of the children are vaccinated. Every hospital in the affected area is full. Durham County Health Committee has been obliged to send 50 cases of tuberculosis home in order to free hospitals at Birtley and Sealburn for small-pox, and both hospitals are now full. Ninety cases of small-pox are under treatment at Rawmarsh, near Rotherham, and 5 at Rotherham. The Sunday and day schools at Rotherham will remain closed for some time. Some patients have been sent to Sheffield for treatment, owing to want of accommodation. Derby small-pox hospital is full of patients, and the medical officer has issued a warning to the public of the danger of the disease spreading. The chairman of the health committee reports that the disease has reached epidemic proportions, and has cost the town thousands of pounds in the past year; 40 patients were taken to hospital in Christmas week.

GRESHAM LECTURES.—Sir Robert Armstrong-Jones is to deliver lectures in Physic at the Gresham College, Basinghall-street, London, on Jan. 20th and the two following days. The lectures founded by Sir Thomas Gresham are free to the public and no tickets are required.

ARMY OFFICER AND CITY CORPORATION.—Colonel R. J. Blackham, C.B., D.S.O., M.L., has been elected a member of the Court of Common Council of the City of London. There was a contest for the representatives of the Ward of Farringdon Without on St. Thomas's Day, and Colonel Blackham was second from the top of the poll. He is, we believe, the first retired officer of the regular Army Medical Service to become a member of the City Corporation.

AN ANCIENT SALOPIAN CUSTOM.—The 179th anniversary service of the Royal Salop Infirmary took place at Shrewsbury on Jan. 3rd. On this occasion the collection is made by two men and two women plate-holders. The men were described of old as "two gentlemen of distinguished rank and fortune," and the ladies are usually the latest bride of the "county" and a débutante at the Shrewsbury Hunt Ball, which takes place at about the same time. Formerly they wore their ball-dresses and the men their hunt uniform, but these customs have fallen into disuse.

THE LATE DR. D. A. O'SULLIVAN.—Daniel Aloysius Sullivan, M.D., who died at his house at Bath on Dec. 30th at the age of 82, qualified as L.R.C.S.Irel. in 1869 and L.R.C.P. Edin. and L.M. in 1873. After studying at the Catholic University, Dublin, where in 1868 he gained the gold medal for materia medica, medical jurisprudence, and practical chemistry, he practised in Cork, Burnley, Southport, and London. The degree of M.D. (hon. causâ) was conferred on him by the National University of Ireland. Dr. O'Sullivan was for many years a member of the Central Council and a vice-president of the Lancashire and Cheshire Branch of the British Medical Association.

ROYAL SUSSEX COUNTY HOSPITAL.—The John Howard wards, comprising 20 beds for the reception of patients who are charged not less than £3 and not more than £4 per week, have proved of considerable benefit to the class of patients for whom they were intended, as well as a lucrative source for the institution at Brighton. The two-year agreement between the trustees of the late Sir John Howard and the governors of the hospital, whereby the trustees undertook to pay to the hospital a sum of £2000 a year over and above the fees which the hospital was authorised to charge the patients, has expired, and the trustees are anxious to terminate their responsibilities. They have come to the conclusion that a trust of a permanent nature should be created, and that they are not justified in continuing to pay to the hospital so large an annual sum as £2000. An agreement has been reached whereby a capital sum of not less than £23,000 is to be transferred by the trustees to the Official Trustee of Charitable Funds to be held in trust for the Royal Sussex County Hospital. The income therefrom will be paid to the John Howard Trust Committee towards the permanent maintenance and upkeep of the present John Howard wards.

PROVISION FOR NON-PULMONARY TUBERCULOSIS IN LANCASHIRE.—The Lancashire County Council some time ago purchased Wrightington Hall, the uses to which the Hall and the estate was to be put being referred for consideration to the County Tuberculosis Committee, and a sub-committee has been discussing a report by Dr. G. Lissant Cox. At present there is no accommodation available for patients suffering from pulmonary and non-pulmonary tuberculosis combined, and more especially for the non-pulmonary condition. Such cases are not taken to pulmonary hospitals nor are they admitted to general hospitals. An institution with an up-to-date light installation would, it is thought, cure the patients suitable for this special form of treatment more quickly than do the methods at present in use. The whole of the accommodation required for the treatment of non-pulmonary cases—adults and children—could be, it is said, provided on the Wrightington Hall estate; and, in addition, 80 beds for adults and 110 for children suffering from combined pulmonary and non-pulmonary tuberculosis. Of these 220 beds, 110 would be replacements and 110 would be additional accommodation. Calculating the maintenance charge at £2 10s. per week, these additional 110 beds would entail a new gross expenditure of £15,080 per annum. After certain deductions from this amount, the cost would be about one-sixth of a penny on the rates. The Government grant of £180 per bed would be available for accommodation provided at Wrightington.

ROYAL INFIRMARY, EDINBURGH.—The annual report describes progress in the development of the radiological department and a reduction in the waiting-list, but states that the problem of better accommodation for nurses is still unsolved and is probably insoluble without the acquisition of more ground. The total number of patients treated in the year ending last September was 15,755, and the average time each patient was treated was 20.6 days. The average waiting-list for admission was 1032, and 55,340 cases were treated in the out-patient department. The ordinary expenditure was £137,750, and the cost per occupied bed is estimated at £141.

MESSRS. W. Heffer and Sons, Ltd., Cambridge, hope to publish in February the seventh edition of Mr. S. W. Cole's "Practical Physiological Chemistry." This edition has been considerably revised and enlarged, and two new chapters on biological oxidations and reductions and on the analysis of blood have been added.—Amongst the publications announced by Mr. Henry Kimpton, High Holborn, London, W.C. 1, are "Bacterial Infection: with special reference to Dental Practice," by Prof. J. L. T. Appleton, of the University of Pennsylvania; "The Therapy of Puerperal Fever," by Dr. Robert Koehler, of Vienna; "A Text-book of Physiology" (second edition), by Prof. W. D. Zoethout, of the Chicago College of Dental Surgery; "Asthma and its Radical Treatment" (second edition), by Dr. James Adam; "A Descriptive Atlas of Visceral Radiograms," by Mr. A. P. Bertwhistle and Mr. E. W. H. Shenton; and "An Introduction to Clinical Perimetry," by Mr. H. M. Traquair.

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

ROYAL SOCIETY, Burlington House, W.

THURSDAY, Jan. 14th.—4.30 P.M.—The following papers will be read:—Leonard Hill and Y. Azuma: Effects of Ultra-Violet Radiation upon Involuntary Muscle and the Supposed Physiological Interference of Visible Rays. I. de B. Daly: A Closed Circuit Heart Lung Preparation. Effect of Alterations in the Peripheral Resistance and in the Capacity of the Circulation. (Communicated by Prof. E. H. Starling.) *Papers to be read in title only:* T. S. P. Strangeways and Honor B. Fell: Experimental Studies on the Differentiation of Embryonic Tissues growing in vivo and in vitro. I. The Development of the Undifferentiated Limb-bud (a) When Subcutaneously Grafted into the Post-Embryonic Chick, and (b) When Cultivated in vitro. (Communicated by Sir William Hardy.) C. N. Long: Muscular Exercise, Lactic Acid, and the Supply and Utilisation of Oxygen. Part XIV. The Relation in Man between the Oxygen Intake during Exercise and the Lactic Acid Content of the Muscles. (Communicated by Prof. A. V. Hill.) K. F. Hetzel and C. N. Long: The Metabolism of the Diabetic Individual during and after Muscular Exercise. (Communicated by Prof. A. V. Hill.) W. G. Millar: The Diffraction Method of Measuring the Diameter of Erythrocytes. (Communicated by Sir E. Sharpey Schafer.)

### ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

**Tuesday, Jan. 12th.**

THERAPEUTICS AND PHARMACOLOGY } at 5 P.M.
MEDICINE
*Discussion:*
The Treatment of Pulmonary Tuberculosis with Sanocrysin.
*Openers:*
Prof. Elliott and Prof. Cummins.
The following have promised to contribute: Prof. Fraser, Dr. Tattersall, Dr. G. Marshall, and Prof. Murray Lyon.

PSYCHIATRY: at 8.30 P.M.
*Paper:*
Dr. R. M. Stewart: The Problems of the Mongol.

**Wednesday, Jan. 13th.**

SURGERY: SUB-SECTION OF PROCTOLOGY: at 5.30 P.M.
*Paper:*
Dr. Cuthbert Dukes: Simple Tumours of the Large Intestine and their Relation to Cancer.
A discussion will follow in which Sir John Bland-Sutton, Sir Lenthal Cheatle, Dr. Archibald Leitch, Dr. G. Marshall Findlay, Mr. Lockhart Mummery, and others will take part.
A demonstration of specimens and microscopic preparations will be on view after 4.30 P.M.

PATHOLOGY: Members of the Section of Pathology are specially invited to attend this meeting.

**Thursday, Jan. 14th.**

NEUROLOGY:
Clinical Meeting at the Hospital for Epilepsy and Paralysis, Maida Vale, at 8 P.M.

**Friday, Jan. 15th.**

ELECTRO-THERAPEUTICS: at 8.30 P.M.
Papers:
Dr. Justina Wilson: Treatment of Lupus by Ultra-Violet Light from Mercury-vapour Arc.
Dr. J. F. Brailsford: The X Ray Diagnosis of Animal Parasites (Helminths) found in Man.
Dr. J. R. Parry: Œsophageal Conditions.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Jan. 11th.—8 P.M., Pathological Evening. Exhibition of Specimens and Skiagrams.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Jan. 11th, to FRIDAY, Jan. 15th.—BETHLEM ROYAL HOSPITAL, S.E. Lecture-demonstrations in Psychological Medicine at 11 A.M. Tues. and Sat., Dr. Porter Phillips and Dr. Thomas Beaton: The Psychoses.—NORTH-EASTERN FEVER HOSPITAL, St. Ann's-road, Tottenham. Wed., 2.30 P.M., Sat., 11 A.M., Dr. Frederic Thomson: Demonstration in the Diagnosis and Treatment of the Acute Infectious Diseases.—ST. MARK'S HOSPITAL, City-road, E.C. Mon., 5 P.M., Mr. Lockhart-Mummery: Special Clinical Demonstration.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Special Course in Nervous Diseases. Mon., Dr. Yealland: Hemiplegia and Paraplegia. Tues., Dr. Hildred Carlill: Lesions of the Peripheral Nerves. Wed., Mr. Rea: Ocular Manifestations of Nervous Disease. Thurs., Dr. Yealland: Disseminated Sclerosis. Fri., Dr. Worster-Drought: Clinical Forms of Neuro-Syphilis.

NORTH-EAST LONDON POST-GRADUATE COLLEGE. Prince of Wales's General Hospital, Tottenham, N.
Intensive Course: Daily, 10.30 A.M. to 1 P.M., Demonstration of Clinical Methods. 2 P.M. to 4 P.M., Selected Cases and General Hospital Work. 4.30 P.M., Clinical Lectures.
MONDAY, Jan 11th.—Dr. Eric Pritchard: Principles of Nutrition.
TUESDAY.—Dr. F. G. Crookshank: Diseases of the Mediastinum.
WEDNESDAY.—Dr. A. E. Giles: Endocrines in Gynæcology.
THURSDAY.—Dr. C. E. Sundell: Feverish Attacks in Childhood.
FRIDAY.—Mr. H. W. Carson: Hæmatemesis.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone-road, N.W.
THURSDAY, Jan. 14th.—5 P.M., Mr. A. W. Bourne: Maternal Mortality.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.
WEDNESDAY, Jan. 13th.—Dr. Harrison: Urinary Deposits, Calculi and Concretions.
THURSDAY.—4 P.M., Dr. Frew: Enuresis.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Jan. 12th.—5 P.M., Dr. Haldin-Davis: Pruritus. Prurigo. Lichenification.
THURSDAY.—5 P.M., Dr. H. G. Adamson: The Erythemata.

ROYAL INFIRMARY, Sheffield.
FRIDAY, Jan. 15th.—3.30 P.M., Dr. Rupert Hallam: The Differential Diagnosis of Small-pox and other Skin Diseases.
Demonstration of Some Common Skin Diseases.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE.
FRIDAY, Jan. 15th.—4.30 P.M. (at Whitworth-street West Branch), Dr. J. F. Ward: Examination of the Chest in Children.

# Appointments.

ALDRED, CHARLES N., M.B., Ch.B. Manch., has been appointed Casualty House Surgeon, Salford Royal Hospital.

ASH, E. BAYLIS, M.B., Ch.B. Birm., M.R.C.P. Lond., Honorary Assistant Physician to the Birmingham and Midland Skin Hospital.

CRITCHLEY, ELIZABETH E., M.B., Ch.B. Edin., Assistant Medical Officer of Health, Preston.

GEBBIE, N., M.D., Ch.B. Glasg., D.P.H., Medical Officer of Health, Stockport.

PASSEY, R. D., M.B., B.S. Lond., Lecturer at the Welsh National School of Medicine, Cardiff.

THOMAS, D. E., M.R.C.S., L.R.C.P., House Surgeon at the Carnarvonshire and Anglesey Infirmary, Bangor.

WEAVER, R., M.B., B.Ch. Belf., D.P.H., Medical Officer and School Medical Officer, Tipton District Council.

St. Andrew's Hospital, Dollis-hill, London, N.W.: HILL, N., M.D. Lond., Honorary Assistant Physician; McCULLAGH, W. McK. H., M.B., B.Ch. Belf., F.R.C.S. Eng., Honorary Assistant Gynæcologist.

Certifying Surgeons under the Factory and Workshop Acts: FARMER, M. L., M.B., Ch.B. Liverp., Croston, Lancs; COX, R., M.B., B.Ch. Camb., Yeovil; FINDLAY, J., M.B., Ch.B. Aberd., Peterhead, Aberdeen.

# Vacancies.

*For further information refer to the advertisement columns.*

*Barrow-in-Furness County Borough.*—Asst. M.O.H. and Asst. Tub. O. £600.
*Birmingham General Hospital.*—Med. Reg. and Res. M.O. £155.
*Birmingham and Midland Eye Hospital.*—Res. Surg. O. £150.
*City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.*—H.P. At rate of £100.
*Canterbury, Kent and Canterbury Hospital.*—Hon. S.
*Colchester, Severalls Mental Hospital.*—Asst. M.O. Locum Tenens, 7 guineas weekly.
*Derby County Borough.*—Asst. M.O. £600.
*Derbyshire Royal Infirmary, Derby.*—Ophth. H.S. £200.
*Hatton, Warwick County Mental Hospital.*—Jun. Asst. M.O. £250.
*Herefordshire General Hospital.*—H.S. Also Second Resident. £150 and £100 respectively.
*Hospital for Consumption and Diseases of the Chest, Brompton, S.W.*—H.P. £50.
*Ilford Urban District Council.*—Chief Asst. M.O.H. £700.
*Kent Education Committee, School Medical Service.*—Dentist. £500.
*Lambeth Parish Board of Guardians.*—Public Vaccinator.
*Leeds Public Dispensary.*—Sen. Res. M.O. £200.
*Lenham Sanatorium.*—Asst. M.O. £400.
*Lincoln County Hospital.*—Sen. H.S. At rate of £200.
*London Fever Hospital, Islington, N.*—Sen. Res. M.O. £500.
*London Lock Hospital, 283, Harrow-road, W., and 91, Dean street, W.*—Hon. Surg. to Out-patients. Also Hon. P.
*Macclesfield General Infirmary.*—Second H.S. £150.
*Manchester, Ancoats Hospital.*—H.P. At rate of £100.
*Metropolitan Asylums Board Infectious Hospitals Service.*—Med. Supt. £900.
*Metropolitan Hospital, Kingsland-road, E.*—Asst. P.
*Middlesex County Council Sanatorium, Harefield.*—Third Asst. Res. M.O. £400.
*Middlesex Hospital Medical School, Dept. of Physiology.*—Research Asst. £250.
*Nottingham, Bagthorpe Institution and Infirmary.*—Asst. Res. M.O. At rate of £300.
*Oswestry, Shropshire Orthopædic Hospital.*—H.S. £200.
*St. Andrew's Hospital, Devons-road, Bow, E.*—Med. Supt. £700.
*St. Helens Hospital, Lancashire.*—Res. M.O. £250.
*Shanghai Municipal Council, Public Health Dept.*—Asst. Health O. Tls.700 per mensem.
*Sheffield, South Yorkshire Mental Hospital.*—M.O. £400.
*Southport Convalescent Hospital and Sea-Bathing Infirmary.*—Res. Med. Supt. £600.
*Sudan Medical Service.*—Four M.O.'s £E.720.
*Victoria Hospital for Children, Tite-street, Chelsea, S.W.*—H.P. and H.S. Each at rate of £100.
*West London Hospital, Hammersmith-road, W.*—Hon. Obstet. Reg.

The Chief Inspector of Factories, Home Office, London, S.W. announces vacancies for Certifying Factory Surgeons a Ryde, Isle of Wight; Rothwell, Yorks, West Riding Alton, Hants; and at Tetbury, Glos.

# Births, Marriages, and Deaths

## BIRTHS.

HIBBINS.—On Dec. 31st, 1925, at "Restholme," Boxhill-on-Sea the wife of W. R. Hibbins, L.D.S., of a daughter.

STUART-WEBB.—On Jan. 4th, at Sussex House, Sutherland avenue, W., the wife of R. E. Stuart-Webb, M.B., of a son

## MARRIAGES.

GROSS—MACDONALD.—On Dec. 29th, 1925, at Holy Trinity Brompton, William Stovell Gross, M.D., M.R.C.P., to Mrs Dorothy Francesca Macdonald, daughter of the late Harol Holden-White.

## DEATHS.

DODD.—On Dec. 27th, 1925, at a nursing home in London Brevet Colonel Anthony Dodd, late R.A.M.C., of Windycroft Instow, N. Devon.

HALLOWS.—On Dec. 29th, 1925, at his residence, Hall gate Doncaster, Harry Pinnington Hallows, M.D. Edin., F.R.C.S. Knight of Grace, Order of St. John of Jerusalem, aged 68

HAMPSON.—On Jan. 1st, at his residence, Royal-crescent Holland Park, W., William Hampson, L.M.S.S.A. Lond (formerly of West Rock Ferry).

HARCOURT.—On Dec. 29th, 1925, suddenly, at St. Thomas' Hospital, John Charles Harcourt, M.B., D.P.H., aged 5 years.

KENT.—On Nov. 24th, 1925, at Tongshan, North China, Hug Braund Kent, F.R.C.S. Eng., M.S. Lond., fourth son o Horace Kent, Barrister-at-Law, and dearly loved husban of Margaret Kent, aged 43 years.

MILLS.—On Dec. 28th, 1925, at Riverdale-road, Sheffiel Lieut.-Colonel Bernard Langley Mills, M.D., F.R.S.E R.A.M.C. (retd.)

MOORE.—On Dec. 28th, 1925, at Elmside, Steyning, Sussex, D Frederick Hone Moore.

O'SULLIVAN.—On Dec. 30th, 1925, at his residence, Glencair House, Bathwick, Bath, Daniel Aloysius O'Sullivan, M.D. Catholic University, Dublin, late of Cork and Burnley, ag 83 years.

WINSTANLEY.—On Dec. 31st, 1925, suddenly, at his residence Half Moon House, Haslemere, Robert Wyndham Winstanley M.R.C.S., L.R.C.P., L.S.A., aged 67.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices o Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## THE HISTORY OF ANTHRAX IN THE WOOL INDUSTRY OF BRADFORD, AND OF ITS CONTROL

By F W Eurich, M D Edin,

SENIOR HONORARY PHYSICIAN ROYAL INFIRMARY BRADFORD, PROFESSOR OF FORENSIC MEDICINE, UNIVERSITY OF LEEDS, AND FORMERLY BACTERIOLOGIST TO THE LATE ANTHRAX INVESTIGATION BOARD FOR BRADFORD AND DISTRICT

(*Concluded from p 55*)

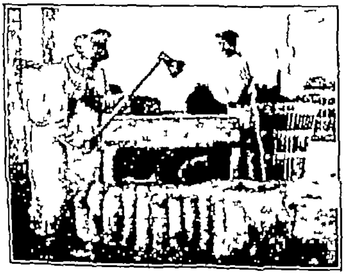
[In the earlier part of this paper *Dr Eurich* told the story of the discovery of the cause of woolsorters' disease and of the early measures taken for its prevention up to the issue of the Home Office regulation in February, 1897 The four illustrations which now accompany the conclusion of the story show the various processes of wool-sorting in which infection may occur ]

The statutory regulations of 1897 having been tried for eight years without any consequent effect upon the incidence of anthrax, a revision of wool-sorting and wool-combing rules was deemed necessary These revised rules, in force to-day—with certain additions, the outcome of the work of later years—were published in December, 1905 During the discussions at the meetings of the joint committee of representatives of the Bradford Chamber of Commerce and the Operatives Associations, it was suggested that a committee should be formed "for the purpose of determining more precisely the classes of wool and hair in connexion with which the danger of anthrax arises, and to consider further means of prevention." This proposal was accepted and so, under the auspices of the Chamber of Commerce, with the coöperation of the Home Office, the Anthrax Investigation Board for Bradford and District came into being, and I was asked to conduct the medical and bacteriological parts of its work.

### *Culture of the Bacillus*

The area over which the investigations were to extend was at first restricted to the worsted industry of the West Riding comprising Bradford, Keighley, Bingley, Queensbury &c. Batley, Dewsbury, and Mirfield were included later So the work began I do not know whether you can realise with what consternation I looked upon the hundreds of bales, each weighing 3 cwt. or more, which filled the warehouses of the mills to which the chairman took me. Where was I to begin, and what method should I adopt? Fortunately for me the question was decided for me, hand-samples being sent to me by various firms in connexion with cases of anthrax, which were at just that time of almost weekly occurrence Anthrax had not previously been cultivated from wool and hair, the few positive results which had been obtained elsewhere than in Bradford having been the outcome of inoculation experiments. Such a method was impracticable here In the first place, the health committee would not allow its premises to be licensed for vivisection, so that all inoculations had to be carried out by me in the pathological department at Leeds. Secondly, so numerous were the samples to be tested that a small menagerie would have been needed to harbour the animals, and the sacrifice of animal life would have been too great. "You won't find anthrax in the raw material," Bell said to me, when I mentioned the problem to him, and I think it was more by good luck than good management that I succeeded—during the first year—in isolating anthrax bacilli from two samples of Persian wool and from one sample of dust from Persian wool out of a total of 123 samples The prime difficulty was this: Anthrax colonies upon gelatine or agar are said to be typical, being composed of masses of curling filaments resembling a barrister's wig; this description is certainly an apt one, but the appearance is not typical, and I soon found that other dust organisms will grow so fast upon agar and may form so dense and widespread a pellicle on its surface that the colonies of anthrax are crowded out or covered by them

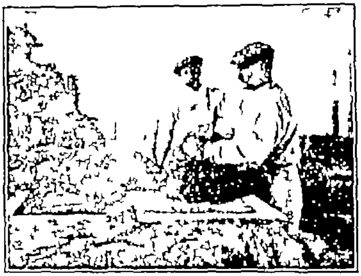
FIG. 1



Opening of bale of wool

After a variety of experiments, with the details of which I will not weary you, I found that the most characteristic form of anthrax colony is obtained by cultivating the bacillus within the agar jelly, not on its surface By adding a wash from the sample of hair to a sufficiency of melted agar (about 9 c.cm. to a plate 4 in in diameter is a workable quantity) the majority of organisms present will be scattered below the surface and the resulting colonies will remain small and fairly well distinct from each other A deep anthrax colony, seen with the naked eye or a pocket-lens, is not unlike the *tell tale filaments* seen in the urine from a case of gleet, and with higher magnification resolves itself into a tangle of knotted strands. Applying this method of cultivation to washes made *from* wool and hair some surprising results were obtained

FIG 2



Opening the fleeces.

### *Recognition of Contaminated Hides.*

It had hitherto been supposed that the dirtier and the more offensive the wool, the greater the danger This is erroneous. Wool and mohair washed beautifully clean, and of silky lustre, may yet have retained their deadly properties. This explains the occurrence of anthrax among those who manipulate wool in processes subsequent to washing The fact that the anthrax bacillus was often obtained from these clean samples in almost pure culture suggested the existence of a hitherto unconsidered factor in the infection of the raw material. This factor is the blood of the animal, be it derived direct from the blood-stream or from blood-stained discharges It is the adhesive property of the blood which is of the greatest importance; soil and excrement are easily removed from the fleece in its rapid passage through the wash bowl, but the dried serum will adhere and with it the anthrax spores

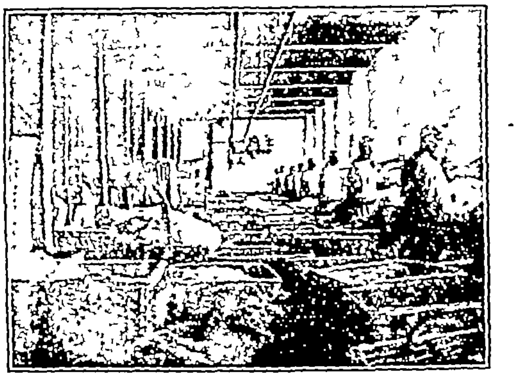
An interesting fact is worth recording I found on one occasion that a 5 g sample of mohair containing more than 100 000 aerobic organisms contained, after washing and drying, only a few hundred, yet the number of anthrax colonies remained relatively high, thus illustrating the tenacity with which blood serum adheres to the material. Furthermore, hairs and soil become glued together to form hard, compact, brittle masses very difficult to penetrate by water and by disinfectants.

Bearing these facts in mind we can understand why the wool-sorting and wool-combing regulations have failed to do more than offer some measure of protection to the sorters. The instruction to remove all damaged and "fallen" fleeces —i.e., fleeces taken from the dead animal—can be effective *only if* the opener or sorter knows their distinguishing characters. As a matter of fact, not a single opener or sorter possessed this knowledge prior to 1908 A fleece was *considered to be a fallen* one when of a peculiar dead lack lustre appearance, an appearance due to prolonged exposure after death. The longer the exposure the more advanced will be the decomposition of the carcass; but as the bacillus of anthrax perishes as putrefaction advances the so-called fallen fleece will be less dangerous the more characteristic its appearances are.

As for the steeping of bales, its futility from the point of view of the carder and comber is sufficiently obvious, the wool being dry again when it comes to his hands, while fans will remove only the loose dust, leaving the dry serum adhering to the fibre. The inefficacy of washing has already been dealt with.

The regulation demanding the exclusion of fallen fleeces had therefore to apply to all blood-stained material, even though some of it may have been derived from healthy animals. Such a precaution had, of course, its limitations. It was soon found that anthrax colonies could be obtained from wool and hair, sometimes even in large numbers, on which no trace of blood could be seen. On inquiry it was found that these wools had either been fellmongered, or had, like East Indian wools, been washed in the country of export—i.e., the danger-signal had been removed while this infection remained and had in all probability spread to fleeces previously sound. It is, however, only fair to state that in a few instances anthrax bacilli were cultivated from wool which showed no evidence of contact with water.

FIG. 3.



Sorting wool.

### *Nature and Source of Infected Goods.*

What wool and hair have been found infected? The samples examined by me number close upon 14,000. They comprise alpaca, mohair from Turkey, Lake Van, and the Cape; Persian wools, Egyptian, Syrian, and Cape wools; East Indian wool and East Indian goat-hair; goat-hair from Tunis and other parts of the Mediterranean; cashmere; Chinese goat-hair, Chinese camel-hair, and Russian camel-hair, besides occasional samples of English, Scotch, Australian, and South American wools. To work out a list in the order of danger is very difficult, the degree of infectivity of these materials varying in different years even when imported from countries in which anthrax is endemic. I have sometimes found only a small percentage infected, at another a vastly greater number. Thus on one occasion I found 11 out of 13 samples of Turkey mohair tainted; on another, of 78 samples of Cape skin mohair, 42 were infected. Taking all in all, I think that East Indian goat-hair is an easy first with approximately 30 per cent. positive results, closely followed by East Indian cashmere and Egyptian wool; then follow Persian wool, East Indian wool, and mohair. In addition we must consider Syrian wool, Tunisian and Mediterranean wool, and Chinese wool and goat-hair and alpaca dangerous. How can all these raw materials be rendered innocuous? That was the remaining problem which the Anthrax Board set itself.

### *Methods of Disinfection.*

Would that the problem had been as easy as it was imagined to be by a dear old fellow who invaded my laboratory one afternoon to explain to me his method. "It's very simple," he said, "to kill the anthrax insects; just pass the wool between heavy iron rollers and squash the beggars." Heat, wet or dry, was found useless, as was expected; if high enough to kill the spores it also damaged the wool irretrievably. We were therefore thrown back upon chemical disinfection. A disinfectant to be commercially possible has to fulfil three requirements: (1) it must kill all anthrax in all wool or hair; (2) it must not be noxious to the workers; and (3) it must be economical both of time and money. Of all the disinfectants tried only one—viz., formaldehyde—answered these requirements. It was found that a 2 per cent. solution would, at a temperature of 100° F. kill naked anthrax spores in 30–35 minutes. Two factors, however, militated against its success in practice. In the first place minute quantities of air caught between the wool fibres would tend to prevent the solution from reaching all parts of the material treated. Secondly, formaldehyde will harden the albuminous constituents of blood clots, and this hardening of the outer parts of the clot will naturally impede penetration. Rough tests had previously shown that formaldehyde does not seriously interfere with either the spinning or the dyeing property of wool; nor did it seem likely that the irritant properties of formalin would prove an obstacle difficult to overcome.

At this point a second investigating body took up the problem of disinfection. In November, 1913, a Departmental Committee had been appointed by the Home Office to inquire into the dangers from infection by anthrax in the processes of wool-sorting, wool-combing, &c., and to consider and report whether any, and if so what, amendments were desirable in the regulations for these processes. This Committee, of which I was a member, came to the conclusion that no amendments to the regulations were likely to affect the incidence of the disease, and so, going beyond its terms of reference, it appointed a small subcommittee to consider the problem of disinfection. The secretary to the Committee and of its subcommittee was one of H.M. Inspectors of Factories, Mr. Elmhirst Duckering. It is not too much to say that it is due to his energy and practical genius that the difficulties mentioned have been overcome. As a member of the subcommittee I enjoyed the inestimable advantage of working with him, the experiments being left in his hands and in mine. The report of this subcommittee is published separately as a Blue-book, and fills 92 closely-printed folio pages. The experiments were carried out with both naturally infected material—viz., clots from Persian fleeces and with artificial clots. 149 experiments were made. The difficulties were finally overcome by the adoption of three devices: (1) In order to gelatinise and soften the clots the opened wool is passed through warm water to which alkali has been added and then through a further bath containing soap. (2) To ensure that minute air bubbles may not be retained in the meshes of the wool, and in order to break up the softened clots as much as possible the wool is squeezed between rollers in its passage from one bath to the next, and this process is repeated as the wool passes into the formaldehyde bath—which is enclosed in a chamber. (3) The third device consists in drying the wool, which again passes between a set of rollers as it emerges from the formaldehyde bath to travel upon a moving lattice to the drying chamber.

FIG. 4.

Feeding the willey machine.

### *Advantages of Formalin.*

Here we may note the use to which a common cold may be put. Mr. Duckering caught a cold; in order to cut it short he poured some formalin upon his handkerchief on going to bed. He was astonished to find on the following morning that though the handkerchief was dry the odour of formaldehyde was still distinctly perceptible. This gave him an idea, and it was found by experiment that formalin would continue to penetrate the remains of blood-clots after removal of these from the bath and that, when the dried wool has been stored for two, or at most three days, the formalin will have done its work, even the most resistive spores being killed. Over 1500 control tests carried out by three independent examiners—by our city bacteriologist, in the Liverpool Public Health Laboratory, and by myself—have shown that the method is effective and reliable. The Government disinfecting station in Liverpool is the result. It is at present the only one in the kingdom and is still regarded as a trial station. But the work it does is great; 1600 lb. of wool can be disinfected in an hour—i.e., the present plant is capable of disinfecting about 10–12,000,000 lb of wool and hair per annum if kept fully employed.

The Anthrax Prevention Act provides that an Order in Council may prohibit the importation of dangerous material except on the condition that it is disinfected in the Government wool disinfecting station. Up to the present such an Order in Council has been made to apply to two materials only—viz.: (1) to wool and hair imported from or through Egypt, and (2) to goat-hair imported from or through India. The present total import of these two classes of material is about 2,000,000 lb. yearly, while about another 500,000 lb of wool is sent voluntarily to the station for disinfection. As, however, about 20,000,000 lb. of scheduled or black-listed raw material are imported into this country annually it follows that cases of anthrax will continue to occur until all dangerous wool is sterilised or until effective precautions are taken in the country of origin.

One reason for the reluctance of manufacturers to make use of the Liverpool disinfecting station voluntarily is the cost of the process. The cost of disinfection—which is chargeable to the owner of the wool—varies from 1d. to 1½d. per pound, and may be lowered still further when means for the recovery of formaldehyde shall have been completed. The cost is a small one, but competition is keen, and even an additional 1d. per pound on the cost of production may hamper our manufacturers in the world-market.

International coöperation is called for and has indeed been discussed by the League of Nations, hitherto, unfortunately, without success.

The pebble which Bell cast into the water has raised a wave that has travelled and is being felt even in distant China and Peru. Let us trust that the principle which guided him throughout his professional life will be shared by the Governments concerned, and that the relief and prevention of suffering, even if it affect but the few, will in the end prevail over subsidiary considerations.

## THE TROUBLESOME CHILD.

UNDER the auspices of the Jewish Health Organisation, Dr A. R. Abelson delivered, on Dec. 26th, at the Whitechapel Art Gallery, London, an address on delinquent children.

Although much progress has been made, he said, the existing system for reforming wrong-doers leaves a great deal to be desired. Wrong-doing is largely bound up with morbid conditions of mind and body, and not everyone is given full power to discern between right and wrong. An important percentage of delinquents are mentally defective, and hence, as a rule, morally deficient; but probably a still larger number are suffering from functional nervous disturbances for which psychological treatment can effect considerable improvement, especially where the moral instability goes hand in hand with what is generally termed a neurotic constitution. These children are often sensitive to good influence, and under ordinary circumstances they are well disposed. Physical disorders must also be taken into serious consideration and receive treatment. After encephalitis lethargica, for instance, a child hitherto extremely well behaved and tractable may develop alarming immoral behaviour. Such conditions as tuberculosis and heart disease are also capable of causing moral upheaval leading to vice and immorality.

### *The "Naughty Child."*

A large number of children often spoken of as fidgety, restless, and inattentive at school are suffering from minor nervous disorders. Teachers can frequently testify to the improvement brought about by removal or cure of diseased tonsils or by the correction of defective vision or hearing. All human beings are potential delinquents. "Surely there is not a righteous man on earth who doeth good and sinneth not" was wisely said by the preacher of old. It is for us to find out the causes of wrong-doing and how it can be remedied, and still more important how it can be prevented. Mr Clarke Hall, magistrate of the Children's Court at Old-street, strongly emphasises the amazing number of young people committing offences, often serious and repeated, who are never brought before a court, either because they are so cunning in concealing their repeated offences or through the reluctance of their parents to expose unpleasant misdeeds. These cases alone show the crying need for some institution where parents who are in trouble can come for advice about their children, which can be given in the strictest confidence without the danger of exposure. A parent who has a nervous child—perhaps a well-behaved child who sleeps badly or has a morbid terror of the dark—could also come there for advice and save considerable heart weariness in years to come. And it is much more necessary to have some such institution where parents can bring their delinquent children before public disgrace has occurred. The common way of attempting to cure children of nervousness and other peculiar weaknesses by shouting, laughing at them, and by making them appear foolish is strongly to be deprecated. It only aggravates evils which require kind treatment and sympathetic help. Strict and narrow upbringing may lead from lying and deceit to hypocrisy and secret consorting with morally unhealthy companions; from tacit disobedience to open rebellion. Wrong-doing is merely a symptom, and as such it cannot be spoken of as being inherited; but criminal acts are more likely to arise where the soil is favourable, and more criminality may be expected in stocks which produce mental defectives or show other signs of marked abnormality than in normal families.

### *Environment and Family.*

Improvement of environment is bound to decrease the amount of delinquency by reducing facilities in our crowded towns for immorality and vice. Homeless young people who are out of work, and even those who are in work, should be able to go to hostels if stranded. Parent and child should alike be educated to meet the problems and dangers of life intelligently. Spoiling and pampering of the eldest child, the only child, or the youngest child, leads to nervous disturbance besides disobedience, bad temper, conceit, and selfishness. Favouritism induces jealousy and resentment in the other members of the family, and unjust accusation may lead to lifelong unpleasant memories. The child, especially, who is inclined to imagine that he is unjustly treated by parents or teachers, requires more careful handling than the average parent—and in particular the tired and harassed mother of a large family in conditions of poverty—is capable of bestowing. Yet the real difficulty is not so much in the external and obvious defects of the home, such as poverty and neglect, as in the inner complicated tangle of habits, attitudes, and reactions that have grown up in the minds of the more active inmates.

In the past said Dr Abelson, the Jews have played an important part in the fight for humane and rational treatment of the erring child. The Jewish industrial schools and reformatory can produce an excellent record of achievement. Further progress, however, lies in the provision of greater scope to medical men and psychologists and in substituting the atmosphere and methods of the clinic for those of the court and prison.

## HEALTH OF PALESTINE UNDER THE MANDATE.

IN the report for 1924 on the administration under mandate of Palestine, the following references are made to health matters. The year was marked by a notable advance in the control of malaria and trachoma; by a beginning in pilgrim quarantine on the Hejaz and Sinai railways; and by the extension of the movement for municipal participation in the conduct and cost of local hospitals. Save in Jerusalem, Tulkarem, Acre, and Haifa the end of the year saw local hospital committees everywhere constituted to direct at their own charge the non-technical services of the hospitals founded and hitherto entirely maintained by Government. Measles is again responsible for a higher death-rate; little can be done to prevent the spread of this disease or to provide medical and nursing aid. Typhoid, typhus, and dysentery affected only the Jewish population, but with low incidence. In the Metullah salient, before general vaccination could be practised, there was an outbreak of small-pox with 17 cases among an isolated Bedu tribe. Four cases occurred in Jaffa among Yemenite immigrants. 54,001 persons were vaccinated by medical officers. Malaria is progressively less prevalent, as is indicated by the percentage of dispensary patients treated for the disease; in 1922 this was 7·3 per cent., in 1923 4·0 per cent., and in 1924 3·8 per cent. In nine months of 1918 118 persons died in Jerusalem from malaria; in 1924 only two. Acute conjunctivitis was rife in 1924. Of 12 projected Government ophthalmic clinics to operate by the generous arrangement of the Order of St. John under the supervision of the Warden and the British Ophthalmic Hospital, Jerusalem, those in Nablus, Ramleh, Gaza, and Beersheba are already in existence; 60,000 school-children were kept under medical observation for trachoma. Two cases of bubonic plague occurred in Jaffa. Acute poliomyelitis and cerebro-spinal fever were reported in two and three cases respectively; tuberculosis in 479 cases with 103 deaths; schistosomiasis in 28 cases, 21 being in Jaffa district, where this disease is endemic. There were nine cases of hydrophobia in untreated cases;

antirabic measures were energetically practised by the Departments of Health, Agriculture, and Police, and over 8000 dogs and jackals destroyed by strychnine bait in the first nine months of the year. Up to the end of October 25,352 births and 14,213 deaths had been recorded, increases of 3928 and 836 respectively over the corresponding period of 1923. Two thousand Palestinians made the pilgrimage to Mecca and 2502 Moslem pilgrims of other countries visited the holy shrines in Palestine, including some 600 who came overland. The Quarantine Board of Egypt has undertaken to establish a station at El Arish for the mutual protection of Egypt and Palestine should either country become infected. Nineteen pupil nurses passed their qualifying examination, and nine pupil midwives, trained at the Princess Mary Maternity Centre, were granted certificates. Ninety licences to practise were granted to doctors, 16 to pharmacists, 36 to dentists, and 31 to midwives. The adhesion of Palestine to the International Opium Convention was notified by His Majesty's Government in August. Twelve kilogrammes of opium, 615 of morphine, 4137 of cocaine, and 125 of heroin were imported under permit; several contraband consignments of dangerous drugs were seized. In the Government laboratories 18,000 routine examinations were made. The chemical laboratory has engaged in research relating to the recovery of potash from Dead Sea brine. 21,000 doses of antirabic vaccine were prepared and 819 persons treated. Antityphoid and anticholera vaccines have also been manufactured for use among immigrants and pilgrims.

## TRAINING TEACHERS OF DEFECTIVE CHILDREN.

In recent years many classes have been opened for dull and backward children, as well as special difficulty classes. The number of teachers with special training and qualifications is very small, and most local education authorities are obliged to choose for the work members of their school staff whom they think would be suitable. But the ordinary elementary school teacher should not be placed in charge of such a class without being given some training. The individual study of the children is necessary, and the ordinary class methods, with just a little more time given to manual work, are of very little use. The teaching of defectives is highly skilled work, demanding knowledge not included in the ordinary training college curriculum. The Central Association for Mental Welfare therefore organised last summer, with the full approval of the Board of Education, a training course, in which the needs of teachers of classes for the dull and backward and of special difficulty classes were specially catered for. The course was attended by 35 teachers, and was so successful that the Association is proposing to hold in London a similar course from May 3rd to July 3rd next, under the direction of Miss Lucy Fildes, educational organiser of the Association. It will not be in any way a substitute for the ordinary short courses organised by the Association for the Board of Education, two of which are being held this year. It is intended primarily for teachers with no previous experience of work for defective or backward children. Besides lectures on psychology and the medical aspects of the problem, opportunity will be given of observing the adaptation of ordinary methods of individual teaching to the special need of the defective child. The rôle of physical education and games in the development of the unstable and anti-social child will be carefully studied, and the best methods of grading the children will be demonstrated. Throughout the course teachers will be given chances of teaching groups of difficult children, of learning various forms of manual work, and of taking part in classes of eurhythmics. The fee will be 12 guineas and students will make their own arrangements for lodging. Applications must be sent, on a form provided, to Miss Evelyn Fox, 24, Buckingham Palace-road, London, S.W. 1, before Feb. 28th.

## WIND SCREEN TROUBLE.

*To the Editor of* The Lancet.

Sir,—Your motoring correspondent might have reminded his readers that any substance which lowers the surface tension of water can be applied to wind screens to banish raindrops. Bile salts are the substances par excellence which lower surface tension, but their application to the screen must needs be messy. The same objection can be raised against glycerine. For convenience, cheapness, and efficiency ordinary yellow soap is difficult to beat. It should be rubbed in irregular smears across the screen, and in a shower of rain a clear film of water, as wide as you please, soon appears. One application lasts all day. Apart from this particular use, a small cake of soap is always useful on a car. Raw potato and apple are all very well in their way, but they are not always instantly available. Any chemicals, however, applied to the screen are useless in snow or sleet.

I am, Sir, yours faithfully,

E. G. T. Liddell, B.M.

Trinity College, Oxford, Jan. 2nd, 1926.

## ALLEGED SMOKING OF STRYCHNINE IN CHINA.

Some months ago an article appeared in the *North China Daily News* alleging the extensive import of strychnine into China for use in drug smoking, and we have seen a more recent letter from a London firm of manufacturing chemists to Dr. W. H. Graham Aspland, of the International Anti-Opium Association, China (26, Hsi T'ang Tzu Hutung, Peking), stating that they had been shipping large quantities of strychnine nitrate (some of it labelled "for hunters' use"), but in view of disagreeable rumours as to the use to which it was being put they had decided to make no further sales to China for the present. Dr. Aspland writes of the import of 5000 ounces of strychnine salts monthly, "without the least restriction," and of the rapid increase of imported caffeine (chiefly to Shanghai and Hankow), amounting now to about 2000 lb. a month. The Chinese, he says, are mixing these alkaloids with heroin, cane-sugar, and milk-sugar in the manufacture of a pill of 4½–5 gr. in weight, the average formula being: Heroin hydrochloride 2¼ oz., strychnine nitrate ¼ oz., quinine sulphate 1 oz., caffeine 5 oz., sugar of milk 48 oz., refined sugar 16 oz., gum and water to make 10,000 pills. Dr. Aspland thinks that these pills are smoked like opium ("the new 'smoke' is more attractive"), but that the greater quantity are swallowed. Strychnine and caffeine are new to him as dope and he asks for enlightenment from pharmacologists as to the addictive effect of these drugs.

## A HANDBOOK ON DRINK.

The Year Book issued by the United Kingdom Alliance and edited by George B. Wilson is described as a temperance reformers' handbook, and contains an enormous amount of information on the problems arising out of alcoholism, and the conditions and interests which encourage the consumption of liquor. The Alliance is a "league of all good citizens whether abstainers or not, without distinction of party, sect or sex, united by a genuine desire to remove the evils of drink from the nation by removing their cause." It favours legislation to allow the people, on the widest possible franchise, to prohibit the sale of liquor in their own localities. It desires "to organise by democratic methods the wise exercise by the electorate of such power when obtained," and in the interval it is anxious to secure such general restrictions over the Liquor Trade as will in any way curtail its power and volume without entrenching it more firmly in the national life. The Year Book spends, perhaps, too much time in flogging horses generally admitted to be dead; but perhaps there are here and there owners who think there is life in them yet. And whilst it casts a proper light on the real motives of many of those who advocate an "improved public-house," it does not altogether meet the feeling of the man in the street that such places are possible and desirable. But the evidence which it does produce of national waste and inefficiency demands the fullest consideration of all those who are wondering how far personal liberty in the matter of drink should be given up to the good of the community, and the Year Book is almost indispensable for those occupied in social and political affairs. It may be obtained from the United Kingdom Alliance, 1, Victoria-street, London, S.W. 1, at the price of 2s.

## DIATHERMY AND OTHER ELECTRICAL APPARATUS.

Messrs. Newton and Wright (electro-medical instrument makers, 72, Wigmore-street, London, W. 1) send us interesting brochures on some of their recent specialties. The Holway diathermy apparatus is designed to suit either medical or surgical work, particular attention having been paid to the design of the spark gap. This consists of an aluminium chamber extensively ribbed on the outside, so that even with a large current it does not become unduly hot. This chamber is provided with an inlet and an outlet tap for gas dielectric, and can also be arranged for use with ether in cases where no gas supply is available. The actual gap comprises a large copper disc, heavily silvered, bridging over the space between a pair of heavy copper electrodes, likewise silvered, so that the gap is in duplicate, an arrangement which conduces to a steady current, while affording means of convenient and delicate adjustment. The electrodes, which are mounted on thick mica diaphragms, are provided with radiation fins for cooling. The Universal X Ray Table (1925 model) of the same firm appears to be a good piece of engineering enabling overhead or under-table work to be carried out with adequate protection to the operator. The brochure on ultra-violet therapy gives useful information in a modest compass, and illustrates several kinds of lamps which now find extensive application.

**Doncaster Royal Infirmary.**—Lord Cozens-Hardy last week opened the new ophthalmic department, which is very well arranged and equipped. The cost has already been met.

# Two Post-Graduate Lectures

[ABRIDGED]

ON

# FOREIGN BODIES IMPACTED IN THE FOOD AND AIR PASSAGES

## MODERN TECHNIQUE IN THEIR DIAGNOSIS AND TREATMENT

*Delivered at the Manchester Royal Infirmary on Dec 11th and 18th, 1925,*

BY SIR W MILLIGAN, M D ,

CONSULTING SURGEON MANCHESTER EAR HOSPITAL CONSULTING AURIST AND LARYNGOLOGIST MANCHESTER ROYAL INFIRMARY

THE direct examination of the food and air passages by endoscopic methods has opened up a new chapter of great importance in the healing art both as to diagnosis and treatment Ever since Kirstein[1] in 1895 demonstrated the possibility of the direct examination of the laryngeal cavity by means of a special form of spatula with an attached lamp, the art of endoscopy has advanced by leaps and bounds

To the late Prof Killian in Germany, to Chevalier Jackson in America, to Guisez in France, and to Paterson, Tilley, Waggett, and others in this country, much of the knowledge in the possession of the profession of how to locate and how to extract impacted foreign bodies is due Each succeeding year has seen a greater degree of mechanical ingenuity and perfection in the manufacture of endoscopic instruments with a corresponding advance in the range of their therapeutic utility Not only is this true with regard to the diagnosis and treatment of foreign bodies impacted in the food and air passages, but also with regard to the many intricate problems connected with lung pathology Prior to the advent of endoscopy the death rate from foreign bodies impacted in the œsophagus was variously estimated at from 20 to 40 per cent., to-day it is barely 2 to 3 per cent. when the œsophagoscope is used.

In like manner the death rate from foreign bodies impacted in one or other portion of the bronchial tree has fallen from about 50 per cent. in pre bronchoscopic days to approximately 5 to 10 per cent. to-day In addition various pathological conditions—e g , bronchiectasis, pulmonary abscess, bronchial stenosis, &c —are to-day infinitely more amenable to successful treatment than was formerly the case To-day an endoscopic training and an endoscopic outfit form essential parts of a laryngologist s mental and manual armamentarium.

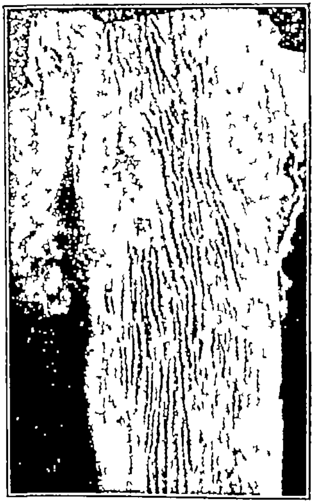
With the aid of expert radiography the presence of any opaque foreign body may be successfully determined and its location by means of antero-posterior and lateral roentgenograms accurately diagnosed With non-opaque or very slightly opaque objects the difficulties are enhanced, and when their presence is suspected but not ocularly demonstrated calls for a thorough physical, radiological and endoscopic investigation. The swallowing of a capsule filled with some opaque material may prove of assistance, being held up, as it usually will be at the point of obstruction, thus demonstrating the location of the intruder which may not be amenable to radiography The variety of foreign bodies which may be swallowed or inhaled is legion but those most frequently met with are pins, safety pins, coins, pencils, dentures, fruit stones, pea nuts, lentil beans, portions of toys, paper clips, small brooches pebbles, pieces of bone, nails, tacks, &c. The habit of putting various articles in the mouth, met with not only amongst children but also amongst those who ought to know better, is fraught with real danger on account of the ease with which they may slip down the food passage, or be inhaled during some sudden inspiratory effort.

### FOREIGN BODIES IN THE ŒSOPHAGUS

When impacted in the larynx death may ensue very rapidly from asphyxiation, when in the food passage, from subsequent ulceration with perforation into the aorta, pleura, or mediastinum. Fig 1 represents a perforation through the œsophageal wall into the aorta from a sharp piece of rabbit bone accidentally swallowed by a young woman Several minor attacks of hæmatemesis preceded the fatal issue, and on post-mortem examination the bone was found transfixing and perforating the aortic wall

The impaction of a foreign body in the œsophagus is usually accompanied by choking and gagging, but in children these symptoms may neither be noticed nor mentioned In adults subjective sensations of a foreign body being present may be complained of and should not be too lightly discarded When ocular inspection reveals nothing in the pharynx or lower pharynx the diagnosis should be regarded as incomplete pending a radiological and endoscopic examination

FIG 1



Perforation of wall of œsophagus by a piece of bone which also perforated the wall of the aorta

The practice of digital examination is to be condemned, the finger being prone either to push the foreign body farther down or to lacerate the soft tissues Inverting the patient should also be discouraged owing to the danger of subglottic impaction. Blind bouginage is equally reprehensible, the thin and movable œsophageal walls being frequently ruptured as a result. Should the cervical œsophagus be ruptured emphysema or abscess may result, while rupture in the thoracic area induces profound shock, emphysema, mediastinal suppuration, with at times perforation into the pleural cavity necessitating the performance of a thoracotomy for drainage purposes In such cases no attempt should be made to remove the foreign body until the rupture has had the chance of healing, but an immediate gastrostomy should be performed in order to feed the patient and to secure rest for the injured tissues.

When a foreign body completely or all but completely blocks the œsophageal lumen, frothy secretion tends to collect in the pyriform sinuses (Jackson's sign) and to overflow into the larynx, inducing cough, huskiness, and even pulmonary symptoms. At other times pressure necrosis is induced with ultimate perforation and formation of an œsophagotracheal fistula or the escape of fluids into the pleural cavity or mediastinum. The sharper the foreign body the greater the risk of hæmorrhage or perforation, hence the danger of an impacted safety pin with the point pointing upwards. Damage may also be done to the larynx during attempts to remove a foreign body tightly wedged in the hypopharynx. Although a foreign body may remain impacted in the œsophagus for years, and may at times become encysted, its presence is always a source of danger owing to the risk of ultimate perforation of its walls.

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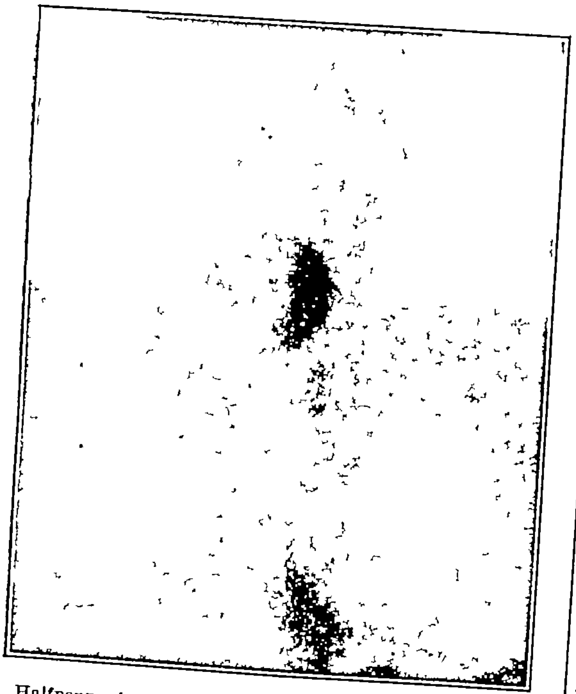
[1] Deutsche Med Wochenschrift, 1895, No 38

Flat foreign bodies—e.g., coins—lie in the œsophagus in the coronal plane and usually at the level of the sterno-clavicular joint (Fig. 2), whereas if inhaled and impacted in the trachea they lie in the sagittal plane. The initial symptoms, choking, gagging, and retching, usually pass off after a short time, leaving, however, the sensation of "something" lodged in the throat.

FIG. 2.



Halfpenny in the œsophagus showing the usual point of impaction.

Odynophagia may or may not be present, while dysphagia depends largely upon whether the foreign body causes partial or complete obstruction, whether it has caused or is causing injury to the mucosa or to adjoining laryngeal structures. Dyspnœa results if the foreign body is large enough to cause pressure on the trachea.

Before carrying out an œsophageal examination the buccal cavity, the lower pharynx, the upper orifice of the hypopharynx, and the larynx should be carefully inspected. In order successfully to perform an œsophagoscopy the patient should lie recumbent on the table with head slightly elevated and extended at the occipito-atloid joint. In this way the cervical portion of the spine is brought into line with the pharyngeal and buccal cavities. In young children no anæsthetic, local or general, is required. In adults, however, most operators prefer to have a general anæsthetic administered, although some, more especially our American confrères, are content merely to swab the pharyngeal mucosa with a 5–10 per cent. solution of cocaine. In young children no examination should be prolonged beyond 15 to 20 minutes, in adults beyond three-quarters of an hour. It is better to make two or more examinations than one prolonged one. As the œsophagoscope is being slowly introduced every portion of the œsophageal lumen should be carefully scrutinised, special attention being paid to the posterior wall where flat foreign bodies are prone to lodge. If attention is not paid to this point the instrument may override the foreign body as the mucosa is pushed forwards. As the œsophagoscope is slowly withdrawn the walls should again be carefully examined. The presence of a foreign body may induce a certain degree of spasm which adds to the practical difficulties of its detection. Much ingenuity is required in selecting the proper type of instrument with which to seize and to withdraw it without injuring the soft and movable œsophageal walls. The suggestion made by Chevalier Jackson of seeing, if possible, a duplicate of the impacted foreign body is well worthy of note. Great care is necessary to avoid wounding the mucosa when an attempt is being made to extract sharp-pointed objects, such as dentures with metal clips, pieces of bone, safety-pins, &c. Dilating the œsophagus with a Hill's dilator is at times of assistance, as is also the rotation of the foreign body in order to secure that any sharp edge or projection is trailed from below upwards. After removal of the foreign body a reinspection of the œsophagus should be made and a second X ray photograph taken, as more than one foreign body may have been present.

In those rare, and to-day exceptional, cases where attempts to remove the foreign body per vias naturale have failed, the performance of an œsophagotom has to be considered. The operation, practicabl only, however, when the foreign body is lodged i the cervical œsophagus, is by no means free fro danger. With existing technique it should be possibl to remove by œsophagoscopy any foreign body whic has been swallowed and become impacted, notwithstanding the practical difficulties encountered.

## FOREIGN BODIES IN THE AIR PASSAGES.

The symptoms presented by a foreign body impacted in the air passages will naturally depend upon its exact location, whether in the laryngeal cavity, the trachea, a bronchus, or a bronchiole. If in the larynx there is, as a rule, some interference with respiration, cough, hoarseness, odynophagia, and occasionally hæmoptysis. The larger the foreign body the greater the amount of dyspnœa and distress. In severe obstruction cyanosis and asphyxiation may become so urgent as to call for an immediate tracheotomy.

If lodged in the trachea Chevalier Jackson has drawn attention to three symptoms which he regards as pathognomonic—viz., an "audible slap," a "palpatory thud," and an "asthmatoid wheeze." The "audible slap," best heard at the patient's open mouth, is due to the expiratory blast striking the foreign body in its passage outwards; the "palpatory thud" indicates the actual detection of air impinging against the foreign body by means of the fingers placed over the trachea; while the "asthmatoid wheeze" is heard as the air streams past a foreign body impacted in one of the larger bronchial tubes.

It is important to note that a foreign body not causing severe obstruction may, after the initial irritative symptoms have passed off, cause no urge symptoms of any sort for a varying period. Th constitutes what Jackson has described as "t symptomless interval." Owing to the larger lume of the right bronchus and to its axis being more line with the trachea than is that of the left bronchu which also is somewhat narrower, foreign bodies hav a greater tendency to become impacted in the forme and also to slip down into the deeper portion of th bronchial tree.

A foreign body which completely obstructs a bronchus causes atelectasis, drowned lung, and, if not removed, pulmonary abscess. In addition, the opposite lung becomes emphysematous (compensatory) owing to overwork. The non-entrance of air into the lung causes loss of movement of the chest wall on the affected side, an impaired percussion note, and decreased vocal fremitus. Moreover, the air in the pulmonary alveoli below the site of obstruction becomes gradually absorbed with a resulting lung collapse and consequent cardiac displacement. Where the bronchus is, however, only partially occluded the physical signs will vary with the degree and constancy of the obstruction. Râles, both coarse and fine, are heard over the lung beyond the point of obstruction, although most intense just around it, while the percussion note is impaired and the movement of the chest wall and diaphragm more limited than normal. In addition, there develops a state of emphysema on the affected side, an obstructive emphysema, due to the fact that a certain, although small, amount of air enters the lung but very little escapes, with the result that air under pressure is retained in the immediate area of obstruction. Consequently, breath sounds are more or less inaudible and râles are heard.

Organic foreign bodies—e.g., beans, seeds, India corn, &c.—if retained for any length of time, tend to swell and to cork the lumen of the bronchus completely. Eventually they undergo maceration, break up, and induce purulency. The Roentgen ray pictures also vary in cases of partial and complete obstruction. In the former the obstructed side is more transparent, the diaphragm is depressed, and its movement is limited; in the latter the area of obstruction appears dense.

In the event of the foreign body being retained and causing suppuration, an abscess of the lung, bronchiectasis, or gangrene may result. An exact definition of the invaded area, lung-mapping, may be obtained either by the insufflation of carbonate of bismuth or the injection of lipiodol. The insufflation of bismuth is effected by passing a long insufflation tube down the trachea and blowing the powder with the aid of a pneumatic pump along the bronchus of the affected side. If a solution of lipiodol is preferred, about 30 c.cm. is injected by means of a long syringe passed well beyond the vocal cords. The fluid is moved as may be desired by altering the position of the patient and the outlines of any bronchiectatic cavity are thus delineated. In this way it is possible graphically to determine fairly accurately the position, size, and relations of any particular cavity, a matter of the greatest practical importance should the performance of thoracoplasty be contemplated.

Pneumonography, or "lung-mapping," as an aid to the detection of pulmonary suppuration, whether the result of retention of a foreign body or aspiration of septic material consequent to one or other operative procedure in connexion with the upper respiratory tract, has opened up a new and important field of clinical work.

The presence of sepsis demands drainage, and the difficulties of securing an efficient outlet vary with the location of the collection. So far as pulmonary suppuration is concerned, drainage may be secured as the result of an external operation, or by means of aspiration and lavage of the infected cavity through a bronchoscopic tube. An external operation is always attended by grave risk, while bronchoscopic evacuation of the abscess cavity in suitably selected cases is practically free from danger.

Not only may the cavity be freed from its purulent contents by aspiration, but it may also be washed out with a suitable and non-irritating solution, such as that recommended by Moore and Lukens—viz., trinitrophenol gr. ii., Lugol's solution 1 drachm, and normal saline solution 1 pint. The injection is made without any anæsthetic, local or general, once a week or even oftener, care being taken to treat only small areas at each sitting and to avoid flooding healthy lung tissue.

The coöperation of the physician, the surgeon, the radiologist, and the bronchoscopist is essential if the best results are to be obtained. Much thought and consideration are necessary before any actual attempt to remove a foreign body from a bronchus is made, its exact localisation and the proper type of forceps for its removal being of the utmost moment, as rapidity of action is a matter of importance to the patient.

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# An Address

ON THE

# FAILED FORCEPS CASE.

*A Post-graduate Lecture delivered at Queen Charlotte's Hospital and at a Meeting of the South-West London Post-graduate Association*

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IT frequently happens that forceps fail to effect delivery, either because they slip or because no progress is made in spite of strong traction. In these cases it is important to re-examine the patient, and review carefully the whole situation rather than persist in ineffectual attempts at delivery which injure the mother and sacrifice the child. In this examination special attention should be paid to the following points.

1. *General Condition of the Patient.*—The time which has elapsed since rupture of the membranes; the presence of a rising pulse or temperature.

2. *Abdominal Examination.*—(*a*) Do the pelvic measurements suggest flattening or general contraction, or are they normal? If pelvic contraction is present, does it allow extraction of a dead perforated baby, or must a Caesarean section be done. (Internal conjugate less than 3 in., transverse at the brim less than 3½ in.) (*b*) The position of the head in relation to the brim—i.e., is it above, in, or through the brim. The head above the brim can be moved from one iliac fossa to the other. An engaging head has a much narrower lateral excursion, while an engaged head is immobile and grasped with difficulty. When the head has passed the brim there is complete disappearance of the cephalic prominence on abdominal examination. Forceps should not be applied to a floating head, and the higher the head is found to be in the pelvis the more carefully should the indication for their application be considered. (*c*) The condition of the lower segment. The uterus may be tender, especially in the lower segment, and closely moulded to the child. There is great risk to the mother if internal manipulations (especially internal version) are carried out in such circumstances. (*d*) The condition of the child. Can the fœtal heart be heard? If the child is alive, can it be reasonably expected to live even if delivered without further trauma? (*e*) The position of the occiput. The position of the back, fœtal heart sounds and limbs, as a guide to the possible existence of a persistent occipito-posterior.

3. *Vaginal Examination.*—(*a*) The presence or absence of lacerations, bruising, and œdema of the perineum, vulva, and vagina. (*b*) When the head is in the cavity, the position of the occiput, as determined by passing the whole hand into the vagina, and the presence or absence of a contraction ring round the child's neck. (*c*) The possible existence of a tumour in the pelvis, bulging forwards the posterior vaginal wall and preventing descent of the head.

The *Common Causes of failed forceps are:* (1) Unrotated or partially rotated occipito-posterior positions of the vertex; (2) a contraction ring round the neck of the child; (3) pelvic tumours; (4) a contracted pelvis: head at the brim, flat pelvis; head in the cavity, generally contracted pelvis. The investigation outlined above not only permits the diagnosis (1) to (4) to be made, but supplies the data which determine the different alternative treatments.

## "OCCIPITO-POSTERIOR" CASES.

Third and fourth vertex positions frequently cause much trouble in labour, and when the forceps are applied in cases of absent or incomplete rotation slipping usually occurs. If the occiput is directed towards one or other sacro-iliac joint, one blade of the forceps comes to rest over the anterior eye, the other blade behind the opposite ear. Slipping is the natural result. The first forceps delivery seen by the writer was in such a case and resulted in evulsion of one eye, and the baby was born alive. When the occiput has incompletely rotated forwards so that it faces the side wall of the pelvis, the grip of the blades is again bad, one being over the occiput and the other over the forehead, and slipping is likely to occur. Moreover forceps traction in such cases is an attempt to pull the occipito-frontal diameter of 4½ in. through the transverse diameter of the pelvic outlet, which is only 4 in. In such cases forward manual rotation of the occiput one-quarter of a circle allows the blades a correct grip and results in an easy extraction as the presenting diameter is then in the widest diameter of the outlet—the antero-posterior of 4½ in.

If the occiput has rotated backwards into the hollow of the sacrum, a good grip may be obtained with the forceps and strong traction may effect delivery, but practically always at the expense of the posterior vaginal wall and perineum, the latter being frequently torn into the rectum. The consultant is frequently asked whether induction of premature labour should be performed in a particular case, because the last labour was a difficult forceps delivery and ended in a badly torn perineum and an asphyxiated baby. Often in such cases the pelvis is found to be normal in size, and there is no obvious cause for the former difficult labour. The explanation is often an unrecognised occipito-posterior vertex delivered face to pubes. In the next labour the baby may arrive before the doctor. Again he is sometimes asked to perforate because prolonged traction fails to deliver the baby, though the head is almost on the perineum; yet in such cases forward rotation of the occiput one-quarter of a circle, for the reasons already given, often allows an easy extraction of a living child. If the doctor has already told the relatives that the child is dead and must be perforated, the extraction of a living child may create an awkward situation.

Failure to recognise a case of backward rotation, non-rotation, or incomplete rotation in a third or fourth vertex—with the results given—is very easily understood. The delay is thought to be the result of disproportion between the head and the pelvis. This it is, but it is a disproportion due entirely to the position and not to the size of the head. The latter is descending midway between flexion and extension, and the occipito-frontal diameter of 4¾ in. (circumference 14 in.) is distending the vagina, whereas in the well-flexed vertex which develops in first and second positions, the descending diameter is the sub-occipito bregmatic of 3¾ in. (circumference 12 in.).

If (as so often happens) the membranes rupture early and the uterus becomes closely applied to the child, or if the patient is very fat or nervous, the practitioner may not make out satisfactorily the position of the back, limbs, and fœtal heart. Later, on vaginal examination, a large caput may obscure or render difficult the palpation of sutures and fontanelles, so that when delay in the second stage occurs, in spite of strong pains and a head low in the pelvis, the diagnosis of moderate disproportion is made and consequently the forceps applied. The slipping of the blades, the abnormal length of the perineum, and the commencing rupture of the latter before even the vulva is distended by the head should provide ample warning in time to correct the diagnosis, rotate the occiput forwards, and so prevent a catastrophe.

In all such cases, after removal of the blades, it is wise to pass the whole hand into the vagina and over the fœtal head until the face or neck are reached, locating exactly the position of the occiput. Then, when the head is pushed up sufficiently to allow it to be grasped and to disengage the anterior shoulder from the pelvic brim, the back of the child should be pushed over to the opposite side of the uterus by the hand manipulating the abdomen, while the other hand in the vagina rotates the occiput to the front. If rotation of the shoulder and back is successfully accomplished the occiput remains in its forward position and the re-application of the forceps and the extraction are usually easy. Occasionally it is impossible to push up, rotate, or pull out the head. In these cases, fortunately not common, the forceps can be left on, and the perforator passed between the blades, after which extraction may be possible without recourse to the cranioclast.

### CONTRACTION RING.

Exactly why the uterine muscle should develop a condition of local spasm we do not know, but such a contraction ring round the child's neck probably causes failure in forceps delivery more often than we suspect. The circumstances, however, are so typical that the cause can usually be suspected at once. The practitioner, in fact, is usually sorely puzzled because he cannot deliver, and yet can find no obvious explanation. The condition of the patient is usually good, the pelvic measurements may be normal, the head not unduly large, even in the pelvic cavity. There is no pelvic tumour. Even the occiput is anterior and the forceps are applied easily and grip well; yet the head cannot be extracted and the little advantage gained by traction is lost when the pull is discontinued. There is usually a history of early rupture of the membranes, and a rather protracted labour with many examinations and possibly some obstetric manipulation. The diagnosis can only be made with certainty by introducing the whole hand into the vagina and feeling the tight ring of muscle round the child.

*Treatment.*—The natural temptation to stretch the ring with the fingers should never be indulged, as it invariably increases the spasm. Early cases in which the child is alive should be treated by repeated small doses of morphia. Then after 12 to 24 hours, if the patient is deeply anæsthetised, delivery by forceps can usually be effected.

In late cases the child is dead and Cæsarean section is contra-indicated unless other procedures, less dangerous to the mother, fail. The head should be perforated and the cranioclast applied, a weight of 7 lb. being attached to the handle and left hanging over the bed. Steady weight traction usually succeeds in the end, but the writer can recollect one case in which it failed, and on opening the abdomen the ring round the child's neck was so tight that it appeared quite anæmic, and required incision before the mother could be delivered.

### PELVIC TUMOURS.

Pelvic tumours complicating labour are not common, but when present they are often overlooked, with the result that attempts are made to drag the child past a fibroid or ovarian cyst, with serious consequences. Fibroids, unless cervical, rarely prevent the head from descending. Even lower segment fibroids, unless large and low down, usually undergo softening and flattening, and, as labour advances, are drawn up out of the way. Ovarian cysts, especially dermoids about the size of an orange or less, lie in Douglas's pouch, symptomless and unsuspected for years until pregnancy or labour lead to their discovery.

*Treatment.*—Forceps, version, and craniotomy play no part in the treatment of tumours complicating labour. No attempt should ever be made to drag a child past a fibroid or ovarian cyst, either by its feet or its head, before or after perforation. Such attempts are fraught with great danger to the mother, and, apart from the effect on the tumour, are likely to produce serious injuries to the genital canal. Injured fibroids frequently become infected in the puerperium, and infected fibroids are very deadly. Most of the deaths in cases of fibroids complicating childbirth are the result of infection of these tumours after delivery. In the same way an ovarian cyst is likely to rupture if a child is dragged past it. The contents of the cyst escape into the peritoneal cavity, the result depending on the nature of the cyst. The difficulties of the ovariotomy, which must subsequently be performed, are considerably increased by the occurrence of this accident. When the obstructing tumour is a fibroid Cæsarean section should be performed, either alone or followed by myomectomy or hysterectomy, according to the indications for each. If the tumour is ovarian it is better to avoid incision of the uterus, if possible. Cæsarean section exposes these patients to the very definite risk of rupture of the scar in subsequent natural labours, or to the alternative risk of repeated Cæsarean sections. If interference is delayed until the os is fully, or nearly fully, dilated, the ovarian cyst can be removed after opening the abdomen, an assistant delivering with forceps before the abdominal wound is closed. If the tumour cannot be removed, even after eventrating the uterus, the latter may require incision before the cyst can be withdrawn from the pelvis, where it is imprisoned by the head pressing the pedicle against the promontory or lateral pelvic wall; but it is always better to avoid Cæsarean section if possible.

### DISPROPORTION BETWEEN THE HEAD AND THE PELVIS.

The first essential in these cases is to decide whether the pelvis is too small to allow extraction of a craniotomised child without great risk to the mother. At Queen Charlotte's Hospital an internal conjugate of less than 3 in. and a transverse diameter at the brim of less than 3½ in. are considered the minimum measurements which allow delivery of a destroyed child without great risk to the mother. In such cases Cæsarean section with or without hysterectomy is the only rational treatment. With measurements greater than these there are four possible alternatives after failure of the forceps to effect delivery: (1) pubiotomy; (2) internal version; (3) Cæsarean section; (4) craniotomy.

*Pubiotomy.*—This operation is very rarely performed by English obstetricians, and has given such disappointing results in this country that it has been abandoned and can be said to play no part in our practice of midwifery. Continental and American writers have published series of cases with good results. The operation is essentially one for the expert. There is a definite risk of injury to the bladder and soft parts, it amounts to the production of a compound fracture in a presumably septic area, and it is an operation thoroughly unsuitable for recommendation in general practice.

*Version.*—Internal version, on the other hand, is a practical and popular obstetric procedure, though of somewhat limited application.

It is likely to prove successful if the following conditions obtain: 1. An internal conjugate of not less than 3¼ in. with an average-sized head. 2. A flaccid uterus not thinned or moulded to the child, so allowing version to be performed without risk of rupture of the uterus. 3. The head above the pelvic brim, or if in the brim able to be pushed up without undue application of force. 4. It is especially of value in cases of unfavourable vertex presentation at the brim—i.e., a brow, or a posterior parietal presentation in which the anterior parietal bone overlaps the symphysis and the sagittal suture remains near the symphysis pubis. In such cases it is more than likely that internal version will cause to engage in the pelvic brim a smaller and more favourable diameter of the after-coming head.

After bringing down the arms the anterior shoulder should be kept under the symphysis and the head pushed through the brim by strong fundal pressure. This promotes a certain degree of flexion and ensures the long diameter of the fœtal head (the occipito frontal of 4½) engaging in and passing through the longest diameter of the brim (the transverse of 5 in.) while the narrowest transverse diameter of the head (the bi temporal of 3¼ in.) passes through the narrowest diameter of the brim—i.e., the internal conjugate, the wider bi parietal diameter being in the roomy lateral part of the pelvis. When the head has passed the brim the child is rotated so as to bring the nape of the neck under the symphysis and the head is then easily delivered by jaw and shoulder traction. It should be remembered that extraction as a breech has many disadvantages both for the mother and the child, especially the risk of injury and asphyxia of the child, and the likelihood of a severe rupture of the perineum in bringing down the arms, but it has one very great advantage—namely, that should it be impossible to push the after-coming head through the brim, perforation and extraction of the head in this position is an easier and safer operation than perforation and extraction of a fore-coming head floating above the brim.

*Internal Version with the Head in the Cavity.*

When forceps fail to deliver a head in the pelvic cavity, it is doubtful whether any advantage is to be gained by version, while in many cases in which the head cannot be pushed up easily the practice is fraught with considerable danger, especially the risk of rupture of the uterus, the uterus being pushed off the vagina. In the absence of general contraction, it is often of greater advantage to rotate the head into a larger and more favourable diameter for extraction, and then to re-apply the forceps, when delivery will often follow. If the pelvis is generally contracted, especially in the funnel-shaped masculine type of pelvis, internal version is a distinct disadvantage. Here the pelvic diameters diminish from above downwards and strong pains drive the head into the funnel, promoting strong flexion, which is increased by traction with forceps. On the other hand, the descent of the after-coming head through such a pelvis is certain to result in extension of the head and elevation of the chin. If the perfectly flexed fore-coming head cannot be extracted by strong forceps traction, how much more unlikely of success is the extraction of the extended after-coming head.

### CÆSAREAN SECTION AND PERFORATION.

In extreme degrees of pelvic contraction Cæsarean section is the only rational treatment, irrespective of the duration of labour. Similarly in moderate degrees of contraction when the child is dead, perforation is recognised as the correct treatment if forceps fail and version is contra indicated.

But in cases of *moderate* contraction, in which forceps have failed and the child is still alive, there is a choice between Cæsarean section and perforation of the living child. There is a growing tendency to extend the scope of Cæsarean section to these cases, irrespective of the greatly added risk to the mother. Indeed, one is frequently asked nowadays whether it is ever justifiable to sacrifice a living child. This question can only be answered after comparing the maternal mortality and morbidity rates of Cæsarean section and craniotomy.

The operation of Cæsarean section performed before rupture of the membranes, in ideal surroundings with a strict surgical aseptic technique and by surgeons accustomed to abdominal operations, is such a safe operation, so simple to perform, and gives such excellent results, that there is an increasing danger of the operation being extended to unsuitable cases, after rupture of the membranes, where the surroundings are not ideal and the best technique is not obtainable. In these cases the results are extremely bad. Amand Routh's series of analysed cases deals with the Cæsarean sections in this country from 1891–1910, while Holland and Kerr's collected cases (over 1000 in number) analyse the Cæsarean sections performed in the leading hospitals of the British Isles from 1911–20. In Routh's[4] series the maternal mortality in cases operated upon before rupture of the membranes was 2.0 per cent., while in cases operated upon after rupture of the membranes it was 10.8–31.3 per cent., the higher figure of 31.3 per cent. corresponding to those cases in which many examinations or attempts at delivery had been made. In Holland and Kerr's[5] series the maternal mortality was 1.6 per cent. in cases of operation before rupture of the membranes, and 10.27 per cent. in cases after rupture of the membranes; again, the higher figure referring to later cases in which forceps had been attempted and in which bruising, œdema, and laceration of the genital canal were stated or assumed to be present.

These figures, representing as they do the collective results of the most experienced surgeons in the British Isles working in large hospitals and under ideal conditions, must, of necessity, carry tremendous weight, and should exercise a real influence on teaching and practice in regard to this operation. The figures show: (1) That in cases of operation at the time of election there is a definite mortality-rate between 1·5 and 2 per cent.—a small but a definite and probably an irreducible minimum rate. (2) That Cæsarean section performed late in labour has a minimum mortality of 10 per cent. and a maximum of 27 per cent. under the *best* available conditions. These deaths are chiefly from septic complications: peritonitis, septicæmia, pyæmia, pulmonary embolism, &c. In addition there is a heavy morbidity-rate in surviving patients due to chronic pain from adhesions, intestinal obstruction from adhesion of small intestine to the uterine stitch line, white leg, utero-abdominal fistulæ (through which menstrual fluid may escape), and many other conditions.

The enthusiasts for Cæsarean section reply that the results of craniotomy are equally bad. *This is not true*, and the mortality from this operation would be even less if obstetricians took the pains to perfect themselves in a truly obstetric procedure rather than give way to the temptation to perform a more showy operation irrespective of the greatly added risks to the mother. In 100 cases of craniotomy at Queen Charlotte's Hospital analysed by the author there were only eight deaths, and it must be remembered that most of these perforations were in grave cases, sent in from surrounding districts, after ineffectual attempts at delivery, cases in which œdema, bruising, and laceration of the genital canal were present, and sometimes even established infection with ante-partum pyrexia and discharge. In these cases the mortality of Cæsarean section is not 8 per cent. but 27 per cent. In Shauta's[2] analysis of 50,000 labours, with nearly 5000 cases of contracted pelvis, there were 82 craniotomies on dead babies with only five deaths—i.e., 6 per cent.—and 76 craniotomies on living children with only one death—i.e., 1·3 per cent.—the lower figure in the latter series being readily understood, as the factors which predispose to septic complications are less likely to be present when the child is alive and less damage has been done to the mother.

It is sometimes stated that the risks of sepsis in late cases of Cæsarean section are exaggerated, but it is unreasonable to disregard figures such as those here quoted, and especially in regard to this matter does a grave responsibility rest upon the shoulders of teachers of obstetrics. If, therefore, in a case of moderate disproportion some error of judgment has been made, which results in failure of forceps to effect delivery, is it not incumbent upon the practitioner to perforate the living child rather than subject the mother to a death risk of 10–27 per cent? Even if the fœtal heart is still audible the child cannot be reasonably expected to live in a great many cases after a long and steady pull with forceps. The attitude of the husband in these cases is the correct one. "Save my wife, never mind the baby," is the universal reply *if an unprejudiced case is presented to him*. He, at any rate, is able to estimate correctly the relative values of the two lives.

Sir George Blacker[1] states that

> the majority of obstetricians of experience hold strongly to the view that it is rarely if ever justifiable to subject the mother to a grave risk in order to save the life of a child. Naturally it is a very repugnant action to have to perforate a living child, but to pretend that craniotomy can be replaced by symphysiotomy or Cæsarean section without much greater danger to the mother is to shut one's eyes to the truth.

In most of these cases the mother is young and when she conceives again can have induction of labour at about the 36th week (maternal mortality-rate 0·2 per cent.) or Cæsarean section just before term (maternal mortality 1·6 per cent.). Every obstetrician of experience has had cases in which cranioclasm has been followed in a subsequent pregnancy by induction of labour or Cæsarean section with little risk and excellent results. It is sometimes maintained that modifications in the technique of Cæsarean section may, or do, greatly diminish the maternal mortality in operations performed late in labour. But it has not yet been proved that there is sufficient reduction in that rate to justify substitution of these operations for craniotomy. Both the extra-peritoneal operation and incision of the lower segment are more difficult to perform, there is more risk of injury to the bladder, and infection of the uterine incision in the lower segment operation would seem more likely.

Cæsarean hysterectomy is an operation with a high mortality rate, and it cannot be usually justifiable to perform an operation of this character on a young woman for the sake of a very doubtful fœtal life, when the sacrifice of that baby will enable her to retain the uterus and bear children in the future under better circumstances with much less risk. The degree of infection in cases considered suitable for Cæsarean hysterectomy is always doubtful, and the majority of the mild cases of uterine infection recover if the child is extracted per vaginam. Bar's[3] eventration operation is probably the most promising of these modified operations and, in my own cases up to the present, has given a mortality of only 5 per cent.

The important distinguishing details of the operation are as follows. The abdominal incision is made long enough to enable the uterus containing the child to be eventrated. The edges of the wound are temporarily clipped together as far as possible behind the uterus, and sterile towels placed between the uterus and the abdominal wound, so as to completely exclude the peritoneal cavity from the area of operation. The uterus is then incised and the child removed. The placenta and membranes are peeled off, and large swabs or rolls of gauze half wrung out in 1 per cent. violet green, 1-1000 flavine, or strong milton, are placed in the uterus, and the latter is tightly squeezed around them for several minutes thus attempting to sterilise the newly created raw surface made by removal of the placenta and membranes. The gauze is then removed and the uterine incision closed and the outer surface of the uterus washed over with violet green or flavine. Then the towels around and behind the uterus are removed, a new gown and gloves are put on, a fresh set of instruments is taken, and fresh sterile towels are placed over the abdomen and around the abdominal wound. The uterus is then replaced in the abdominal cavity and the abdomen closed in layers. In this way contamination of the peritoneal cavity is prevented as no uterine contents escape into it, and also a definite attempt is made to render the interior of the uterus sterile.

In presumably infected cases the operation gives very good results, but a sufficient number of cases has not yet been published to justify the extended use of the operation as an alternative to craniotomy, though it is probably the best of the modified methods of Cæsarean section for septic cases.

With regard to the technique of cranioclasm itself there are a few important points in technique which make for success and which are not usually emphasised. After perforating the skull it is important to break up the septa at the base of the brain, so as to allow the solid blade to be passed right down to the medulla. This blade should be passed with the rough surface towards the face. The hollow blade is then passed right over the face, and if the solid blade has been passed down to the medulla, locking will be effected with the hollow blade over the face, a good grip is obtained on screwing up the handles, and an easy extraction by traction alone follows. It is rarely necessary to remove separately the bones of the vault. If the solid blade is not pushed well home, locking is secured with the hollow blade over the forehead and not the face. On tightening the screws only the frontal bones and scalp are included between the blades and slipping is inevitable. The three-bladed cranioclast, though not in common use, has a great advantage over the two-bladed instrument in difficult cases and is invariably used at Queen Charlotte's Hospital.

### PREVENTION OF FAILED FORCEPS AND DIFFICULT FORCEPS.

*Induction of Labour and Trial Labour.*—Difficult and unsuccessful forceps deliveries are usually preventable by antenatal supervision, ending in induction of labour at some time between the 30th and 38th week of gestation. From 1908–17 434 cases were induced at Queen Charlotte's Hospital. There was only one maternal death (0·23 per cent.), and 340 of these were delivered spontaneously with a fœtal and neonatal mortality of 37 (10·8 per cent.). *Ninety-four were delivered by forceps with a mortality of 17 per cent.* The following table shows the cases analysed.—

| Period of gestation. (weeks) | No of cases* | Fœtal and neonatal deaths | Percentage | Period of gestation. (weeks) | No. of cases.* | Fœtal and neonatal deaths | Percentage |
|---|---|---|---|---|---|---|---|
| 40 | 120 | 19 | 15·8 | 34 | 12 | 5 | 41·6 |
| 39 | 52 | 6 | 11·5 | 32 | 4 | 2 | 50·0 |
| 38 | 122 | 8 | 6·8 | 30 | 2 | 0 | — |
| 37 | 47 | 5 | 10·0 | 28 | 1 | 0 | — |
| 36 | 59 | 9 | 15·3 | 24 | 1 | 1 | 100·0 |
| 35 | 4 | 2 | 50·0 | | | | |

* In the last five years over 100 inductions per year have been carried out at Queen Charlotte's Hospital.[6]

The fœtal and neonatal mortality for the whole series was 13·3 per cent. For the cases from 36–40 weeks it was 11·7 per cent. The higher mortality during the 39th and 40th weeks was probably due to some of these cases being left a little too long. The *table shows the high mortality* of induction before the 36th week, and the great value of this operation from the 36th–38th week. The majority of the cases of contracted pelvis encountered in the South of England are of the moderate kind, rarely needing Cæsarean section, but frequently ending in difficult forceps and death of the child, and sometimes in failed forceps and perforation. It is just this type of case which is so amenable to treatment by induction between the 36th and 38th week. Earlier than the 36th week the children *usually* weigh under 5 lb. They are reared with difficulty and often fail to stand the stress of labour. If in a case of disproportion examined at or before the 36th week the head *cannot* be pushed into the brim, Cæsarean section at term is indicated. If *the head at the 36th week can just be* pushed into the brim with great difficulty, induction of labour should be performed within a few days. If at the 36th week the head pushes in easily, weekly repetitions of the test should be carried out, induction being performed when the head can just be pushed in with difficulty; the case never being allowed to pass beyond the 40th week. If a patient is to be seen once only in the antenatal period, let it be *in the 36th week.* These principles in estimating the time for induction are followed religiously at Queen Charlotte's Hospital, where the medical staff is convinced of their great value in the prevention of difficult forceps deliveries, stillbirths, and perforations in labour.

*The Trial Labour.*—The difficult cases are those seen for the first time at or near term, in which the obstetrician cannot be sure whether the head will pass through the brim, even after repetition of the test under anæsthesia. Although midwifery is an exact science, the human element involved in matters of judgment renders inevitable *occasional mistakes,* so that the most experienced accoucheur may be ultimately faced with a difficult forceps or a perforation, in spite of antenatal supervision. It is in these doubtful cases that trial labour has such a great value; not a trial of nature *à outrance,* where *perforation* is permissible in the end, and the *trial* is for future guidance—i.e., our conduct in the next labour—but a trial of spontaneous labour against Cæsarean section, a trial in which perforation is a mark of failure, and even forceps is avoided if possible.

In such a case the decision must be made as early as possible after rupture of the *membranes,* because the risks of Cæsarean section increase rapidly after that event. Valuable information can be obtained by *repeated abdominal examinations of the head at the* pelvic brim as labour advances. In favourable cases flexion and fixation of the head in the brim are followed by disappearance of the overlap at the symphysis pubis, and *finally by inability to feel the cephalic prominence* per abdomen. When these signs occur in succession, the case can be left alone and at most will need a medium or easy low forceps. In unfavourable cases the membranes rupture early, the cervix dilates *slowly, the pains are weak,* and descent, fixation, and disappearance of the overlap fail to occur or are delayed too long. Sometimes prolapse of the cord occurs, making an immediate decision necessary.

If Cæsarean section is performed in such a trial labour where an aseptic technique has been followed, few vaginal examinations and no attempts at delivery made, and in which bruising, œdema, and laceration *of the genital canal are absent, the risk of the operation* is little greater than that at the time of election. It is best to exclude high forceps entirely from such a trial labour, but should the practitioner be tempted to apply them, the head being jammed in the brim and *the os fully dilated, great care* should be taken to *apply them carefully and to pull tentatively* and steadily for not more than 15 minutes. Then if no marked progress has been made, it is wiser to remove the forceps without injury to the genital canal and to consider the question of Cæsarean section before it is too late. At such a stage the baby might be reasonably expected to live, and the risks of Cæsarean section, though definite, are not prohibitive, but *if, as so often* happens, anæsthetist and accoucheur exchange tasks, *and repeated prolonged and unsuccessful attempts at* forceps delivery are made, the child's life is a poor risk, the genital canal is bruised, lacerated, and possibly definitely infected, and the *risks of Cæsarean section* to the mother are so great as to contra-indicate entirely that operation.

REFERENCES.

1. Blacker, Sir G. Journal of Obstet. and Gyn., 1921, xxviii., *453–455*
2. Bar: Archives Mens. d'Obstet. et de Gyn., 1910, xi., 49–61
3. Shanta Journal Obstet. and *Gynæcol.* Brit. Emp., 1909, xv., 322.
4. Routh, A.: Ibid., 1911, xix., 235
5. Holland, E., Kerr, Munro: Proc. Roy. Soc. Med., 1920, xiv.; and Journal of Obstet. and Gyn., 1921, xxviii.
6. Clinical Reports, Queen Charlotte's Hospital, 1908–1922.

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# THE DIFFERENTIATION OF FOOD-POISONING BACTERIA.

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DURING the last few years considerable attention has been directed to the causation of outbreaks of food poisoning. Apart from those due *to B. botulinus,* others caused by members of the Salmonella group occur from time to time. Burgess[1] has recently described an extensive outbreak of 703 known *cases due to B. aertrycke.* Of recent years, apart from the work of Andrewes,[2 3] Schutze,[4 5] Topley,[6] and that of Savage and Bruce-White,[7] all of which deals essen*tially with the serological* aspect of the subject, not much has been added to our knowledge which will help the worker in smaller laboratories to differentiate the members of this perplexing group of organisms. Savage[8] refers to these organisms as being nearly *indistinguishable culturally and* morphologically from one another, and says that they constitute a kind of no-man's land which needs exploration urgently. He further says: "I feel that *much* value to public health and epidemiology would accrue if this neglected field was more thoroughly surveyed."

### *Failure of Sugars to Differentiate.*

Now when the worker in the smaller laboratories is faced with an investigation into one of these outbreaks it is essential for him to be certain that the abnormal flora in the patient's dejecta are identical with those in the articles of food causing the outbreak. If he is in possession of mono-specific sera advocated by Andrewes[3] he will have no difficulty in proving the identity of organisms from these two sources, but if he does not happen to have these sera he will have to rely on cultural characteristics. Here the "sugars" will help him, but only up to a certain point, and even with the rarer compounds, such as inositol, he will not be able to differentiate many members of the Salmonella group.

It is where the "sugars" fall short in this differentiation that we would urge the employment of certain organic salts for this purpose. It has been shown that with the "sugars" the Salmonellas (*B. paratyphosus* A included) can be differentiated into four groups, and that by the study of the fermentation of certain organic salts[9] seven groupings can be obtained, and by means of both sugars and organic salt reactions a total of eight groupings is possible.

### *The Help of Salts of Organic Acids.*

The salts which we have found most useful in differentiating the Salmonellas are: the sodium salts of citric, *d*-tartaric, *l*-tartaric, *m*-tartaric, fumaric, and mucic acids. These are employed in a peptone water medium in a concentration of 1 per cent., and they are not materially affected by sterilisation in the autoclave. The cultures in the salt media are incubated at 37° C. for 48 hours, and decomposition of the salt is then investigated by adding a sufficient quantity of a soluble lead salt; 0·6 c.cm. of a saturated solution of lead acetate to every 5·0 c.cm. of the tartrate medium, or 0·5 c.cm. to a similar quantity of the citrate medium. All of the acids mentioned yield insoluble lead salts, and, with the exception of fumaric and mucic acids, the precipitate caused by the addition of lead acetate is bulky and tends to remain in suspension, forming a white flocculent column. Decomposition of the salt is evidenced, on adding the precipitant, by the formation of a slight granular greyish-white precipitate composed chiefly of lead carbonate, which sinks rapidly to the bottom of the tube.

In the case of fumaric acid the lead salt forms a slight heavy precipitate, quite unlike the light voluminous precipitates given by the other acids. Sodium fumarate, however, is very readily acted upon by all members of the Salmonella group, and the earliest results of this action are the formation of small quantities of sodium carbonate and sodium succinate, in the presence of either or of both of which lead fumarate forms a bulky precipitate like that of lead citrate or tartrate. *B. paratyphosus* A and *B. paratyphosus* C do not carry the decomposition of fumarate beyond this stage, but all the other Salmonellas complete the decomposition of the fumarate and succinate, leaving only a residue of carbonate. It has been found desirable to extend the incubation period to 96 hours, in the case of this salt, in order to allow for its slower decomposition.

In the case of mucic acid, precipitation by lead also yields a small heavy precipitate which, however, may readily be distinguished from the lead carbonate, in the tubes in which decomposition of the salt has occurred, by adding a little acetic acid, which will dissolve lead carbonate but not lead mucate.

### *Results up to Date.*

For a more detailed account of the technique of these tests, the reader is referred to our previous paper.[9] Since this paper was published we have had the opportunity, thanks to the kindness of Mr. Bruce-White, of further studying the action of eight more strains of bacteria, all isolated from cases of food poisoning on the organic salts. In the case of each organism the result of the action on the organic salts was directly correlated with the serological findings obtained by Mr. Bruce-White, and it is interesting to note that three strains of the newly described Derby type and the single strain Dar-es-Salaam stand out from the other Salmonellas, both in their action on the organic salts and in their serum reactions. Altogether we have studied the action of a total of 78 strains of the various Salmonellas, and in every instance the nine groupings which we have arrived at have been clearly differentiated one from another.

The following table illustrates the actions of the various Salmonellas on the six salts selected. A − sign indicates that the salt is unaffected, and a + sign that complete decomposition has occurred.

| — | Citrate. | *d*-tartrate. | *l*-tartrate. | *m*-tartrate. | Fumarate. | Mucate. |
|---|---|---|---|---|---|---|
| *B. paratyphosus* A.. .. | − | − | − | − | − | − |
| *B. paratyphosus* B.. .. | + | − | + | − | − | + |
| *B. paratyphosus* C.. .. | + | + | − | + | − | − |
| *B. suipestifer* .. .. | + | + | − | + | + | − |
| Salmonella type "G" .. | + | + | − | + | + | − |
| Type Reading .. .. | + | + | − | + | + | − |
| Type Mutton .. .. | + | + | + | + | + | + |
| Type Newport .. .. | + | + | + | + | + | + |
| Type Binns .. .. | + | + | + | + | + | − |
| Type Stanley .. .. | + | + | + | − | + | + |
| Dar-es-Salaam, Bruce-White | + | − | − | − | + | + |
| Type Derby .. .. | + | + | + | + | − | − |
| *B. enteritidis* Gärtner .. | + | ± | ± | ± | + | − |

The only member of the Salmonella group which has given inconstant results with the organic salts is *B. enteritidis* Gärtner. Here, although the various strains have apparently been identical from a morphological and serological aspect, the activity with which they attacked the organic salts has been very irregular.

In our previous paper[9] we indicated the possibility of distinguishing *V. choleræ* from other vibrios by means of salt fermentations. This assumption was based on the results of tests carried out with the few strains of vibrios available at the time. On a more extended investigation, made possible through the kindness of Dr. R. St. John-Brooks, who supplied us with a large number of strains of *V. choleræ* and cholera-like vibrios, we have been unable to confirm our previous opinion; some of the cholera-like vibrios behaving like the true *V. choleræ* in their fermentations.

In conclusion we would urge the use of these salts of organic acids as offering the most valuable of the biochemical means of differentiating the various members of the important Salmonella group.

### *References.*

1. Burgess, W. L.: Proc. Roy. Soc. Med., 1925, xviii., 81.
2. Andrewes, F. W., and Neave, S.: Brit. Jour. Exper. Path., 1921, ii., 157.
3. Idem: Jour. Path. and Bact., 1922, xxv., 505.
4. Schutze, H.: THE LANCET, 1920, i., 93.
5. Idem: Jour. of Hygiene, 1921, xx., 330.
6. Topley, W. W. C., Weir, H. B., Wilson, G. S.: Ibid., 1921, xx., 227.
7. Savage, W. G., and Bruce-White, P.: Med. Res. Council Rep., 1925, No. 91.
8. Savage, W. G.: Veterinary Jour., 1925, lxxxi., 435.
9. Brown, H. C., Duncan, J. T., Henry, T. A.: Jour. of Hygiene, 1924, xxiii., 1.

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**RESIGNATION OF JOHANNESBURG M.O.H.**—The resignation of Dr. Charles Porter, medical officer of health for Johannesburg for 23 years, has produced warm tributes from the Pietermaritzburg Congress and in the South African press. After holding various public health appointments in England, including that of county medical officer for Shropshire, Dr. Porter went to Johannesburg under the régime of Lord Milner, and on the understanding that his appointment should be on the same terms of tenure as those obtaining in England. This proviso was the cause of adverse criticism, but allowed him to carry through the work he began. The *Rand Daily Mail*, in reviewing his achievements, draws attention to the fact that he came to the city at a time when nearly everything coming within the scope of a public health department in a well-ordered community had yet to be done, whilst he relinquishes office in the assurance that all those services are in a thoroughly satisfactory condition, and that Johannesburg is now one of the healthiest cities in the world. During the past 20 years the white death-rate has declined by 31 per cent. and the incidence of enteric by 87 per cent.

# AN ANALYSIS OF FOUR HUNDRED CONSECUTIVE CASES OF GONORRHŒA IN THE MALE.

### INVESTIGATED AND TREATED IN THE VENEREAL SECTION OF THE GENITO-URINARY DEPARTMENT OF THE LONDON HOSPITAL.

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THE present article deals with 400 consecutive cases of gonorrhœa in the male treated at the London Hospital Venereal Clinic. The authors hope that the following data and deductions may prove to be of interest and use from a clinical, administrative, and sociological standpoint. We must emphasise the fact that no attempt has been made in this clinic to achieve time records. We are conscious that in respect to the length of time taken to produce a cure our statistics will not compete with many other records, and we would here utter a note of protest against the increasing tendency to estimate results by an appeal to a mere numerical standard.

In this analysis, only those cases in which gonococci were found in the urethral film have been included.* Another feature which tends to reduce the number of cases considered is that only those patients who were officially discharged as cured enter into this calculation.

### *Routine Treatment.*

On the patient presenting himself for treatment the usual clinical history is taken—i.e., the date of exposure to infection, the date of onset of discharge, and enumeration of previous attacks. A urethral smear is then taken of which a microscopic and bacteriological examination is made. The anterior urethra is washed out with oxycyanide of mercury 1/5000, by Janet's method, and the patient is called upon to pass his urine. A rectal examination is made and the condition of the prostate and vesicles noted. The testes and epididymes are also palpated. The patient is urged to attend daily for irrigation and as required for prostatic and vesicular massage and urethroscopic examination and treatment. If he cannot come up for irrigation he is supplied with a syringe, with potassium permanganate solution of the requisite strength, and a leaflet with instructions and rules.

### *The Marriage Test.*

When all clinical symptoms have subsided, and an examination by the urethroscope has failed to reveal the presence of follicles or infiltrations, and a smear testifies to the normal condition of prostate and vesicles, then after all treatment has been suspended for one week the patient is subjected to the "marriage tests." These are carried out after one week has elapsed between the last treatment and the first test. They are three in number performed at weekly intervals (the patient meanwhile taking a little alcohol or receiving other provocative treatment).

Each marriage test involves a microscopic and bacteriological examination of urine and urinary deposit, a thread film and culture, a prostatico-vesicular film and culture, and vesicular contents per se when necessary. Only patients on whom three of these examinations have been made and have proved to be negative are passed as cured.

At first sight the number of patients remaining until formally discharged would seem disproportionately small—viz., 138 out of 400. But, owing to our proximity to the docks a substantial proportion of the patients are either seafaring men or engaged in casual labour at varying hours, for whom regular attendance during a number of weeks is impossible. Another class, largely represented in the clinic, is drawn from the alien population of the East End of London. Here again regular attendance at the clinic within specified hours on two days a week—when the clinic (apart from the irrigation department) is open—presents a difficulty which many patients fail to surmount. Hence their failure to attend for final tests, &c., when a cessation of signs and symptoms satisfies them that they are cured. It is obvious that a clinic in the densely populated area of East London cannot function as it should without being open on every day of the week.

### *Clinical Data as to Gonorrhœa.*

First attack, 294; second or more, 106.

*Proportion of Previous Attacks.*—It is a noticeable fact that of the 400 cases under consideration 106, or about one-fourth of the total number, had suffered from gonorrhœa on a previous occasion. When the fact is realised that most of the patients were under the age of 30, the proportions observed are even of greater interest, as showing that fear has no great power as a deterrent to exposure to infection.

### *Age of Patients.*

| Under 20 | 20–25 | 25–30 | 30–35. | Over 35. |
|---|---|---|---|---|
| 28 (7%) | 147 (36¾%) | 119 (29¾%) | 53 (13¼%) .. | 51 (12¾%) |

The conclusions arrived at after consideration of this table are: 1. That the years 20–25 appear to be the time of greatest danger. 2. That from 25–30 there is a marked reduction, to some extent due to marriage, possibly accounted for by increased prophylactic experience. 3. It is surprising that the percentage of patients under 20 years of age is so small, for it is in direct opposition to what one would expect. This figure must not be taken as forming an index of the extent of promiscuous intercourse which occurs under that age.

### *Influence of Alcohol.*

| Drunk. | | In liquor. | | Sober. |
|---|---|---|---|---|
| 51 (12¾%) | .. | 34 (8½%) | .... | 35 (78¾%) |

The attempt to correlate alcoholic indulgence with the incidence of venereal disease is extremely difficult. The terms "drunk," "in liquor," "sober" are extremely relative; some patients will advance "drunkenness" as an ethical excuse when no intoxication probably existed. Others, disliking the additional stigma of drunkenness, will deny a fact. If it were possible to obtain absolutely reliable data as to the condition of patients in respect to alcohol at the time of infection, valuable and suggestive results might be obtained as regards the correlation of alcohol to (*a*) the incubation period; (*b*) severity of the attack; (*c*) the extent of the time in terms of implication of the anterior and posterior urethra, and of the incidence of complications such as epididymitis, vesiculitis, and metastatic gonorrhœa.

### *Sources of Infection.*

| Prostitutes. | | Amateurs. | | Marital. |
|---|---|---|---|---|
| 252 (63%) | .... | 107 (26¾%) | .... | 41 (10¼%) |

In taking the clinical history the patient was always questioned as to the source of the infection; 41, or 10¼ per cent., denied conjugal incontinence, implying that the infection contracted was of marital origin; a card for the women's department was always given to be handed to the wife in these cases, and it is gratifying to report that most of the women came up to the department. 107, or 26¾ per cent., stated that they contracted gonorrhœa from women who were not prostitutes—i.e., women to whom no payment was made; 252, or 63 per cent., admitted associating with prostitutes. It will be noted that infection from prostitutes amounted to almost two-thirds of the total cases.

### *Incubation Period.*

| Days— | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | 3 | 4 | 5 | 6 | 7 | 8 | over 8 |
| 52 (13%) | 69 (17¼%) | 57 (14¼%) | 52 (13%) | 37 (9¼%) | 56 (14%) | 14 (3½%) | 76 (19%) |

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* See page 120, Gonococcal Rheumatism.

It will be seen that there is a wider difference in time in the incubation period than is usually described. Some cases show gonococcal pus in the urethra two days after the infecting coitus, others show no signs until after 14–21 days. The number in the last column is surprisingly high, 19 per cent., so that one is inclined to ask what are the factors which influence the incubation period? Is it the virulence of the organism or the resistance of the patient, or has the actual site of infection any causal relationship to time? Is it possible that there is a relationship between the species of gonococcus implicated and the length of incubation?

Gonococci grown on media in the laboratory under constant conditions do not show these wide variations in time; the inconstant but determining factor would seem to be associated with the patient. It is not the usual practice at the clinic to make urethroscopic examinations until at least three to four weeks have elapsed from the onset of disease. By that time the picture presented is one that gives no indication of the exact site of the entry of infection.

### *Cases of Anterior and Posterior Urethritis.*

The total number of cured cases of gonorrhœa were 138 out of 400. The cases which remained anterior—i.e., in which there was no infection of the posterior urethra, as shown by Janet's test and examination of the prostatic bead, and no infection of the vesicles—were 28, or 20 per cent. At first sight the proportion of cases which remained anterior seems low, but these results must not be compared with those that might be obtained in certain spheres of private practice where the patients can be placed in relatively ideal conditions, where they comport themselves with discretion, and carry out the precepts of their doctor with care. In a working-man's clinic, and especially in the neighbourhood of the docks, we find a large number of patients still carrying on heavy manual labour, which, apart from its effects upon the disease, also practically precludes the following out of the strict dietetic régime which is indicated. Their hours of work also prevent them from attending the irrigation room with regularity. Again, consideration has to be given to the question whether the marked indulgence in alcohol, particularly in spirits, which characterises many of the younger patients in this part of London, is not a factor in rendering the posterior urethra more susceptible to an extension of infection.

### *Cases of Epididymitis*

| First attack. | | | | Second or more. | | | |
|---|---|---|---|---|---|---|---|
| Right. | Left. | Both. | Total. | Right. | Left. | Both. | Total. |
| 20 | 23 | 1 | 44 | 11 | 7 | 2 | 20 |

Here we have to note that a very large percentage contracted epididymitis. Many of these cases, however, were already suffering from it when they appeared at the hospital. Of the remainder we must remember that many still continue to carry on their occupations, and those, at times, laborious ones, even when suffering from this complication. Apart from work, the factors of alcoholic indulgence, erotic excitement, and injudicious injections on the part of the patient will probably account for a large percentage.

Three points arise out of the consideration of the foregoing statements:—

1. There should be greater insistence on the necessity of patients immediately seeking adequate medical treatment after the onset of any urethral discharge.

2. That, in the opinion of one of us (E. C.), as soon as epididymitis of gonococcal origin is discovered, irrigations and injections should be reduced to the minimum required for comfort, and here Nature generally helps us by providing that there should be a marked reduction in the amount of discharge. It is better (with the foregoing proviso) that no irrigation should be given until the very acute stage of the epididymitis is passed. Markedly beneficial results have followed the adoption of this policy of abstention.

3. *Epididymitis, Efficiency and Economics.*—We are insistent that it is the duty of the community to provide far greater accommodation for the appropriate treatment of patients suffering from gonococcal epididymitis. In our own clinic we have three beds available for male patients suffering from gonorrhœa, a lamentably inadequate number. Time after time a patient suffering from epididymitis appears, his condition insistently calling for rest, hot fomentations, &c. Our beds are full. The patient lives either in lodgings, where he can get neither rest, baths, fomentations, &c., or in one or two rooms with the rest of his family, and an equal lack of opportunity of obtaining treatment. At times a patient who works by day has only a right to occupy a bed during the night and has to resign occupation in the morning in favour of a night-worker, who is its tenant by day. In some instances he may manage to get into an infirmary. The results of insufficient treatment are an unnecessary continuation of the patient's suffering, a prolongation of danger to the community through his infectivity, with increased expense to the nation owing to his inability to engage in productive work. We would venture to urge, as one of us (E. C.) has frequently done before, that by the help of the Ministry of Health and the County Council a small hostel should be set apart in London (and in other towns where necessary) where such cases can receive adequate treatment. The reduction of suffering, the abbreviation of the period of infection, and the shortening of the period of enforced idleness would afford a triple justification of such a step. And in certain instances patients would be willing to pay a small sum towards the expense of their treatment.

### *Cases of Vesiculitis.*

| First attack. | | | | Second or more. | | | |
|---|---|---|---|---|---|---|---|
| Right. | Left. | Both. | Total. | Right. | Left. | Both. | Total. |
| 2 | 26 | 36 | 64 | 10 | 16 | 13 | 39 |

On examining the above figures the reader will probably be impressed by the large number of patients in whom vesiculitis supervened. Personally we do not share this surprise, since, as time goes on, we realise that the incidence of vesiculitis is much greater than is usually recognised. We have no hesitation in stating that in general, when a patient has a chronic discharge which defies the ordinary routine treatment of irrigation and prostatic massage, he is suffering from vesiculitis. Further, we know that patients frequently have been discharged as cured with an infected vesicle, with an intermittently or permanently occluded duct. That this is so frequently the case is not surprising when one considers how greatly a pathological vesicle may vary in respect to size, contour, consistency, &c. So subtle and so difficult of recognition are the features frequently exhibited that it is only possible to give a definite and reliable opinion after very great experience. Special emphasis is laid on the necessity of the most complete vesicular examination. Not only is every patient examined by the clinical assistant in charge of the case, but he is also periodically referred to the director of the department or his deputy, and again when the final tests are in progress. Finally, when regarded as cured, as a result of clinical and bacteriological examination, he is again submitted to a further examination of the vesicles by the director or his representative.

We would here place on record the valuable results which accrue in suspicious cases of vesiculitis by obtaining and examining the vesicular contents apart from that of the prostate. This procedure, which was suggested by the director, Mr. Hugh Lett, has been successfully practised over a considerable period and has resulted in gonococci being detected and localised when other methods have failed.

### *Gonococcal Rheumatism.*

First attack, gonococcus was identified.

Multiple attacks and cases of chronic urethritis where the gonococcus was identified in 106 cases.

In the course of this investigation 828 consecutive patients have been examined, including 400 which have formed the basis of our previous analyses. Had we confined ourselves to the original 400 cases not more than two examples of gonococcal rheumatism would have been found. Of these 828 patients 204 were the subjects of a first attack of gonorrhœa and the gonococcus was found to be present.

*There were four cases of gonococcal rheumatism out* of the 204, as follows:—

*First Attack.*—Right knee-joint, 2; left knee-joint and left ankle, 1; right shoulder, 1. Of the 800 cases investigated 534 of the patients had either suffered from one or more attacks of rheumatism previously or were the subjects of chronic urethritis. 106 showed the presence of gonococci, leaving 428 chronic cases in which, although gonococci were not identified, yet the clinical evidence was strongly in favour of the rheumatism being causally related to the gonococcus. Of these 534 7 only suffered from rheumatism, as *follows*:—

*Multiple Attacks and Cases of Chronic Urethritis.*—Both knee-joints, 4; right knee-joint, 1; left knee-joint, 2.

We are of opinion that the percentages shown above are *much lower than those usually* described in text-books. In *many instances there was a history of* gonococcal rheumatism, antecedent to the attack of urethritis or articular trouble, for which they presented themselves at our clinic. *We are convinced that the* number of cases in which gonococcal rheumatism developed for the first time whilst the patient was suffering from an attack of *gonorrhœa, for which he* was treated at our clinic, has been much smaller than represented by the above percentages. We are inclined *to attribute these encouraging figures to the* prompt irrigation of the posterior urethra, and the thorough and systematic depletion of the vesicles and prostate of their pathological *contents as soon as* clinical safety permitted.

Unfortunately we have no access to statistical records *to enable us to compare the present incidence* of cases with that of the past or *with what* obtains in other clinics. Our opinion is that the number of patients suffering from *gonococcal rheumatism is* much less than in previous years, a possible tribute to the prompt and more efficient treatment to which patients are subjected. *Again, the wider recognition* by the public of the danger accruing to patients from the consumption of alcohol while suffering from gonorrhœa may be *another factor* productive of the reduction of cases. One outstanding fact is that there is little benefit to be obtained by only treating the joint or joints affected. Pain can be palliated in this manner, but no cure can be obtained until the causal foci present in the vesicles, prostate, &c., are actively and perseveringly treated.

*Summary of Cases (total 400).*

| | |
|---|---|
| Discharged cured | 138 |
| Still attending | 23 |
| Transferred to other clinics | 7 |
| Ceased to attend | 232 |

(Two months, 2; one month, 7; no marriage test, 181; one attendance, 42).

It may be of interest to note that of the 400 cases 138 were discharged cured. Twenty-three were sti attending when this paper was written and 7 had bee transferred to other clinics, thus leaving a residuu of 232 who had ceased to attend. *Of these*, 181 ha left without having any marriage test, 7 had le after one, and 2 after two *marriage* tests. Forty-tw *patients left after* one attendance only. There substantial reason for believing that many of thos patients who left after receiving a *prolonged* amount treatment, but who had not waited for the marriag tests, were really cured, although they naturally fa to figure in the list of cures.

The authors wish to thank Mr. Lett *for* th clinical and clerical opportunities which have mad it possible to publish these notes, *and also* for th sympathetic encourage*ment* and help which he h extended to them.

# NON-VOLATILE ALIPHATIC COMPOUNDS IN GENERAL ANÆSTHESIA.*

BY ROBERT K. LAMBERT, M.D.

THE production of full general anæsthesia has, since its introduction, almost always been accomplished by the sole use of gaseous and volatile substances. As preliminary measures various alkaloids have proved *of considerable value, but otherwise* there have been few modifications, even of the original methods of administration. The reasons for this strict adherence are evident: the large margin of safety insured, particularly by ether; the rapid absorption and excretion of gases by the lungs, enabling the anæsthetist to keep the degree of anæsthesia well under control*; and lastly, the ready* availability of these substances.

## *The Search for Ideal Anæsthesia.*

There are, however, various disadvantages to the present-day routine anæsthesia, to which, through familiarity, we have become more or less reconciled, but which should be taken into consideration: first, the occasionally deleterious and uniformly unpleasant after-effects leave much to be desired; secondly, the double passage of large *amounts* of irritating gases through the lung tissues disposes toward the production of pathological *processes*; and thirdly, operative shock is still prevalent. In this connexion there is an important psychic factor, the *emotion of fear being almost uniformly aroused*, and also the effect of the abrupt induction, which necessitates a sudden adjustment of the organism to acute poisoning.

In the search for ideal anæsthesia much is to be *hoped from the* recent introduction of further gases, such as ethylene and the like, *but there remains* another large and fertile field which invites investigation. Various relatively non-volatile aliphatic compounds have been used *for years in the anæsthetisation* of experimental animals, and there is reason to believe that, could their use be made practicable for man, the *aforementioned drawbacks* to chloroform and ether might in some respects be overcome.

The most important groups of these substances are the halogen derivatives of aldehydes and ketones (chloral, &c.), the derivatives of carbonic acid (*urethane, &c.*), and the higher alcohols (isopral, &c.). A large number of these are now used *as* sedatives and hypnotics, but few attempts *to* extend their application have been made, and those with [illegible] partial success.

Burkhardt,[1] an exponent of the intravenous technique for the administration of [illegible] in 1913 experimented upon *animals* with [illegible] aliphatic compounds. Solutions of [illegible] [illegible] veronal, medinal, chloralamid, paraldehyde, [illegible] and isopral were tried. Of these, he [illegible] hedonal and isopral to be of the [illegible] [illegible] value for the production of *full* [illegible] [illegible] reasons, however, are too [illegible] [illegible] supply of hedonal could not be obtained. Isopral-ether intravenous infusion was used by Lehrnbecher [5] in 1923, and again the chief objections raised were to the bulk of fluid necessary. Moreover, it must be admitted that the technique of intravenous administration is not readily adaptable to all circumstances.

### *The Use of a Mixture of Isopral and Hedonal.*

Many of the obstacles met with by these and other workers seem to have been overcome, in experiments on animals at least, by the employment of a mixture of isopral and hedonal, to be described. An ideal anæsthesia would seem to be one by which the patient could be slowly and pleasantly rendered more or less insensible in his room, easily tided over to surgical anæsthesia in the operating theatre, and in which, after operation, he would return to deep, but not too protracted, physiological sleep. The idea of using aliphatic compounds alone to attain this end was discarded, because at the present time they are insufficiently controllable in their action, and do not provide a large enough margin of safety. With a completely safe dose which will produce the proper degree of stupor, however, the benefits of superimposed ether or chloroform should be obtained, the transition stage become imperceptible to the patient (as described by Mertens [2]), and the quantity of gaseous or volatile anæsthetic be greatly reduced, while its administration might be stopped early in the operation.

By the use of a combination of isopral and hedonal many of these desiderata have been attained in animal experiments. Administration of bulky infusions is unnecessary, the late excitement, sometimes occurring after isopral alone, can be eliminated, and greatly reduced doses of hedonal can be employed. A careful plotting of time-intensity curves (see figure) makes it possible to avoid dangerous super-imposition of gaseous anæsthetics before the original non-volatile ones have reached their maximal effects, and also makes it possible to foresee with fair accuracy the duration of anæsthesia.

*Isopral.*—Trichlorisopropylalcohol, or isopral, is readily soluble in alcohol and ether, and slightly soluble in water. It is absorbed very rapidly by the mucous membranes of the alimentary canal and the subcutaneous tissues. Excretion takes place for the most part as trichlorisopropylglycuronic acid, about two-thirds being excreted in this form by rabbits (Heffter [7]). Only a trace is excreted by the lungs. The action of isopral is by no means limited to the cerebrum; the bulb, spinal cord, and sympathetic system are also affected. Very little alteration in the circulation occurs with narcotic doses, there being a slight fall in blood pressure. Toxic doses first affect the respiratory centre, and later the heart. Total anæsthesia produced by isopral alone has on occasion been followed by excitement in animals (Burkhardt [1]), and the same has occurred after its use with chloroform in man (Kleinschmidt [3]).

The hypnotic dose for man is from 0·5 g. to 1 g. (in toto), and up to 8 g. (in toto) have been given with safety (Mertens [2]).

The table of doses for animals (Heffter [7]) is:—

| | Hypnotic. | | Lethal. |
|---|---|---|---|
| Rabbit .. .. | 0·2 g. per kilo | .... | 0·9 g. per kilo |
| Dog .. .. | 0·093 g. „ | .... | 0·6 g. „ |
| Cat .. .. | 0·09 g. „ | | 0·25–0·3 g. |

*Hedonal.*— Methylpropylcarbinolurethane, or hedonal, is also soluble in alcohol and ether, but with difficulty in water. Absorption and excretion both take place very slowly, but there is complete oxidation in the body to carbon dioxide, water, and urea. Sleep effected by hedonal is closely akin to the physiological, the respiration and blood pressure being practically unaltered, save in the normal manner. Anæsthetic doses in man and animals produce no stage of excitement, but the duration of anæsthesia is protracted.

The hypnotic dose for man is from 1·5 g. to 2 g. (in toto). A dose of 8 g. (in toto) has been followed by untoward symptoms (Lederer [4]).

The table of doses for animals (Heffter) is:—

| | Hypnotic. | | Lethal. |
|---|---|---|---|
| Dog .. .. | 1–8 g. (in toto) | .... | 10–15 g. (in toto) |
| Cat .. .. | 0·3–0·8 g. „ | .... | 1 g. „ |

The differences between the physiological actions of hedonal and isopral are striking. The former is slow of onset, while with the latter almost immediate effects can be perceived. That this is due to a different rate of absorption and not to immediate cellular effect has been very kindly demonstrated by Prof. A. J. Clark, who has perfused the isolated frog's heart with solutions of the drugs. Under these conditions, indeed, hedonal produces a more rapid action than isopral. The intact animal, however, absorbs and apparently excretes isopral much the faster of the two. The difference in the rate of action of the two drugs when given hypodermically is shown by the curves (see figure) (this difference is, of course, not observed with intravenous administration, where there is no factor of absorption).

As has been mentioned before, the use of isopral alone has been unsatisfactory. When hedonal is administered alone, by any means other than the intravenous, there is too long a latent period before the summit of the curve can be reached, for practical purposes. By mixing the two, however, in the proper proportions an effect can be obtained in a short time, while the hedonal action occurring late apparently eliminates excitement.

Administration of fixed narcotics via the alimentary canal is unsatisfactory not only because of the great variability of action, but because here again a considerable lapse of time is required before the drug can have its full effect. The intravenous use would perhaps be the route of choice were it not for the fact that these preparations are only sparingly soluble in water making an unpleasantly large bulk necessary. It has been found that the physical properties of isopral and hedonal make a mixture peculiarly adaptable for injection, subcutaneously or intramuscularly. Both are solids, hedonal melting at 76° C. and isopral at 49° C. When warmed together in certain proportions the melting points are sufficiently lowered to cause liquefaction. There is no ascertainable chemical change, and refrigeration will often cause a distinct separation into layers. Moreover, shaking the mixture in water does not split off chloral. A good proportion to produce a rapid induction of narcosis, without too sudden ataxia or too sustained an effect, appears to be two parts by weight of isopral to one of hedonal, which is given intramuscularly. The mixture, made by warming the ingredients together, remains fluid at room temperature; but a small quantity of sterile olive oil is added to insure this being the case, and at the same time is useful in bringing the bulk of the mixture from a little below, to exactly three parts by volume—i.e., 2 g. isopral + 1 g. hedonal = 3 c.cm.

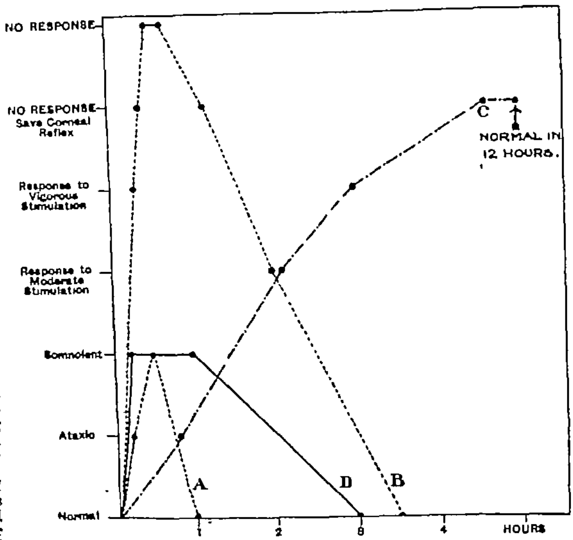
Because of the slight volatility of these substances when warmed, it is deemed wiser to mix them by means of aseptic technique while in their dry state, and then to add sterile olive oil rather than to attempt sterilisation of the mixture as used. (For the same reason tight stoppers and not cotton plugs should be used in containers.) Bacteriological cultures of the mixture made in the above manner have failed to yield organisms of any kind; in fact, Howard and Stimpert [illegible] have recently shown that there is considerable bactericidal action of isopral.

The following table of doses has been determined for rats by a series of experiments. The preparations were given subcutaneously, the isopral being warmed above its melting point and given directly, and the hedonal dissolved in a small quantity of 50 per cent. alcohol. (Control rats injected with similar quantities of 50 per cent alcohol were, of course, observed.) With reference to this table it must be borne in mind that the apparent effective dose for smaller animals is of little value as applied to the dose for man, because minor psychic and physical changes are not readily demonstrable in the animals.

The considerably lower margin of safety provided by hedonal is noteworthy.

| — | Minimal effective dose. | Anæsthetic dose. | Minimal lethal dose. |
|---|---|---|---|
|  | per kilo. | per kilo. | per kilo. |
| Isopral .. .. | 0·05 g. | 0·25 g. | 0·30 g. |
| Hedonal .. .. | 0·075 g. | 0·10 g. | 0·28 g. |
| 2 isop. + 1 hedon. | 0·05 c.cm. | 0·30 c.cm.<br>(or 0·25 c.cm./k. intramusc.) | 0·60 c.cm.<br>(or 0·40 c.cm./k. intramusc.) |

It was found that a dose of 0·15 c.cm. per kilo of the I.-H. mixture given intramuscularly was very useful for determining the effects of superimposed gaseous anæsthetics in cats. By leaving the cat in a dark, quiet place for about two hours after the injection a state of somnolence was obtained, so that the cat could only be roused by considerable agitation.



The effect of isopral, hedonal, and a mixture of the two on cats. A, 0·05 g. isopral per kilo. B, 0·25 g. isopral per kilo. C, 0·20 g. hedonal per kilo. D, 0·10 c.cm. isopral-hedonal per kilo (2 parts isopral to 1 part hedonal by weight, plus olive oil to make 3 parts by volume).

It is necessary to keep animals quiet following an injection. The rapidly progressive ataxia produces fright, and accordingly a certain amount of excitement in animals which remain active through one cause or another. Animals which are kept quiet and soothed always evince happiness and contentment. It is possible to overcome part of the action of the drugs by continual psychic stimulation—e.g., by placing a mouse within the cat's range of vision.[†]

A series of laparotomies were performed upon cats under ether which had been preceded by sufficient isopral-hedonal to produce stupor (0·15 c.cm. per kilo), but not full anæsthesia. These were controlled by another series in which ether alone was used. The degree of anæsthesia and blood-pressure level remained strikingly uniform in the first series of cases with doses of about 10–15 c.cm. ether, despite numerous shock-producing manipulations. In the controls, however, it was necessary to give about three to four times as much ether during the operation, and under no circumstances could as even an anæsthesia be obtained, nor could the blood-pressure level be kept as constant. In the control animals vomiting occurred soon after the administration of ether was stopped, whereas the animals under united anæsthesia passed from full anæsthesia to post-operative sleep which lasted several hours, and little vomiting was observed.

Intraperitoneal injection of the same dosage will produce complete anæsthesia within nine minutes, but the use of this route has not yet been carefully investigated. As yet, small doses only have been given to man. Nevertheless, general effects have been observed from as little as 0·5 c.cm. subcutaneously. At the site of a subcutaneous injection there is slight localised soreness and œdema, persisting about two hours, but no redness. But as with several other moderately irritating substances, it can be freely used intramuscularly without unpleasant local effect. A further mixture with novocaine has not been injected, because of a slight liberation of chlorine which takes place. The region of nerve trunks must be carefully avoided, as the isopral is an alcohol, and has been shown to paralyse an injected nerve.

The practical application of these drugs to man is now being attempted at the surgical unit of the University College Hospital, and it is hoped that other investigators will find the problem worthy of their attention.

*Summary.*

It is suggested that by the preliminary use of non-volatile aliphatic compounds in general, and more particularly by a mixture of isopral and hedonal, the following benefits may result: (1) The patient may be made drowsy and content, or completely somnolent before leaving the ward. (2) The completion of anæsthesia by gaseous anæsthetics may be facilitated, and the duration of their use be reduced. (3) After operation, the patient may fall into prolonged and healthy sleep.

Because up to date only small and tentative doses have been administered to man these benefits have not yet been obtained, but the results of animal experimentation encourage the hope that they will be found to accrue.

I wish to express my gratitude to Prof. A. J. Clark and Prof. C. C. Choyce for their interest and help, and to Dr. H. D. Wright for making the necessary bacteriological observations.

*References.*

1. Burkhardt: Seventeenth Internat. Congress of Med., 1913, Sect. 7, p. 23.
2. Mertens: Verhand. der deut. Gesellschaft f. Chir., 1911, xl., 220.
3. Kleinschmidt: Berl. klin. Woch., 1914, li., 213.
4. Page: THE LANCET, 1913, i., 1258.
5. Lehrnbecher: Arch. f. klin. Chir., 1923, cxxiii., 317.
6. Howard and Stimpert: Jour. Amer. Pharm. Assoc., 1925, xiv., 487.
7. Heffter: Handbuch der exp. Phar., 1923, i., 418.
8. Lederer: Wien. klin.-therap. Woch., 1904, xi., 418.

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[†] In this regard it may be of interest to mention the commonly accepted belief that morphia always produces excitement in cats. In the physiological laboratories of the University College it has been found that morphia may be given to cats if only a little skill is used in soothing the animal into a quiet condition during the injection. The excitement said to be due to the morphia is the result of manipulation and may be avoided.

# HERPES ZOSTER IN SPONTANEOUS SUBARACHNOID HÆMORRHAGE.

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The object of this note is to record the occurrence of an herpetic eruption of nerve-root distribution in two cases of spontaneous subarachnoid hæmorrhage. This symptom was not present in nine cases I have seen myself, nor, so far as I know, has it been observed by others.

Case 1.—A woman, aged 42, previously healthy, was found unconscious at her bedside and removed to the St. Marylebone Infirmary where I saw her on the fourth day of her illness. She was then conscious but irritable and confused; she resisted attempts to examine her and, except for repeated complaints of headache, was unable to give an account of her symptoms. She presented the classical picture of acute cerebro-spinal fever with extreme rigidity of the neck, Kernig's sign, and pyrexia. Ophthalmoscopic examination revealed recent papillœdema of both discs; on the right side, beyond the swollen disc, were several large collections of blood, very dark, bulky, with rounded edges not at all flame-shaped, and quite unlike ordinary retinal hæmorrhages. It looked as if drops of blood had been allowed to fall upon the retina from a large-bored pipette. On the left side, in addition to several large round hæmorrhages, there was one, very large, with a horizontal upper and a rounded lower border, in size and shape like half a threepenny-piece. The abdominal and thoracic viscera appeared to be healthy; the urine was free from albumin and sugar; the Wassermann reaction was negative in the blood and cerebro-spinal fluid. Lumbar puncture yielded cerebro-spinal fluid under increased pressure intimately mixed with blood. The patient improved steadily for several weeks but died rather suddenly, apparently from a recurrence of meningeal hæmorrhage. During the period of improvement her mental state was exactly that known as Korsakoff's psychosis, a condition I have seen in others recovering from the disease. The body was not examined after death, but the history of unconsciousness with recovery to a condition indistinguishable from cerebro-spinal fever, the subhyaloid hæmorrhages, the bloody cerebro-spinal fluid, and the mental state in the later stages leave little room for doubt about the diagnosis which receives confirmation from the mode of death.

In this patient a copious eruption of herpetic vesicles appeared on the upper part of the chest and over the deltoid muscle on the left side in the area of skin supplied by the fourth and fifth cervical sensory nerve-roots. It was present when I saw her first on the fourth day of her illness.

Case 2.—A man, aged 37, previously healthy, complained one evening of severe headache of sudden onset; during the night he was restless and rambled in his speech; by the morning he was, in his wife's words, "conscious and no more." When I saw him at Charing Cross Hospital on the fifth day of his illness his condition was that of a man with fully-developed acute cerebro-spinal fever. Before I saw him bloody cerebro-spinal fluid had been withdrawn by lumbar puncture and spun in a centrifuge; the supernatant fluid was yellow; this proved that blood had been present in the fluid for many hours and was not due to a faulty puncture. The Wassermann reaction was negative in the blood and cerebro-spinal fluid; the urine was normal. The patient died on the eighth day. After death Dr. A. Piney found blood in the subarachnoid space over the whole surface of the brain. Around the middle cerebral artery on the left side, about 1 inch from its origin, was a recent blood-clot about the size of a walnut. A probe within the artery met an obstruction on reaching the centre of the clot; careful washing and dissection revealed a ruptured aneurysm on the artery large enough to contain a cherry stone. The brain and cerebral arteries were otherwise perfectly healthy, as were all the other organs of the body.

In this case, where the diagnosis was confirmed after death, an herpetic eruption appeared on the right side of the chest in the lower part of the area supplied by the fourth cervical sensory nerve-root. The patient's wife noticed it first on the third day of the illness.

### *Remarks.*

When confronted by the symptoms of meningitis in a patient free from disease in which inflammation of the meninges is a probable complication, and beyond the age at which tuberculous meningitis usually occurs, the physician should think rather of meningeal hæmorrhage than of meningitis itself, for the former is much the more likely cause; and if herpes zoster is a symptom it is still more likely, as herpes, except on the face, is almost unknown in meningitis due to organisms. The cases described above exemplify the two common forms of spontaneous subarachnoid hæmorrhage. In one form there is coma leading to death or recovery to a condition simulating acute meningitis, in the other the symptoms are those of meningitis throughout. In both of these cases the bloody cerebro-spinal fluid indicated the correct diagnosis; in one the characteristic subhyaloid hæmorrhages provided evidence that blood had been shed around the base of the brain. In young people the blood usually comes from an aneurysm which forms at the site of a congenital defect in an artery, near its origin from the circle of Willis. In older patients a ruptured arterio-sclerotic vessel is the commoner source. In some cases in which blood has been found evenly distributed throughout the subarachnoid space careful search has failed to reveal a ruptured vessel, and the condition is attributed to a general "weeping," analogous to that which is said to occur in "true gastrostaxis" and in certain cases of hæmaturia. My own feeling is that the proportion of cases in which rupture of a single vessel is discovered will increase with the amount of care that is used in searching for it.

The potency of blood free in the cerebro-spinal fluid is shown by the severity of the irritative phenomena in this disease; headache is never more sudden and severe, nor is neck-rigidity or Kernig's sign ever more distinct in true meningitis than in some of these cases. It is not difficult to account for herpes zoster, for the spinal subarachnoid space extends outwards around the posterior roots, sometimes as far as the root ganglion. The anatomical arrangement differs in different individuals and in the same individual at different spinal levels. I assume that in my cases blood in the spinal subarachnoid space reached certain ganglia by this route, and then by irritation produced the same result as it does when hæmorrhage occurs within the ganglion itself.

I am indebted to Dr. Basil Hood, medical superintendent, St. Marylebone Infirmary, and to Dr. W. Cecil Bosanquet, senior physician, Charing Cross Hospital, for permission to publish these cases.

# AN EASY METHOD OF PERFORMING TRACHEOTOMY.

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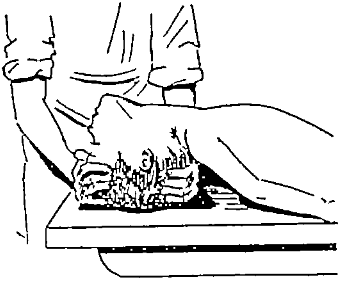
Any medical man, whether experienced in surgical work or not, may be suddenly called upon to perform a tracheotomy. In a fat, struggling, nearly asphyxiated child, with the veins in the neck distended with blood, this small operation done in the usual way, may become formidable to one without much practice. Time may be wasted, blood may enter the trachea, and the incision in the trachea may be wrongly made.

By the technique advocated below the operation becomes almost bloodless, is freed from all possible confusion; the trachea is held steady and is clearly exposed to view and no blood can enter. After a little practice the operation can be performed within one minute. A preliminary note written in conjunction with my then house surgeon, Dr Yue Man Kwong, on this as well as on other points in connexion with tracheotomy appeared in the *Caduceus* for May, 1924, and was subsequently reprinted in the *China Medical Journal* Further experience with this method has seemed to justify its wider publication.

FIG 1.



*Technique.*

The child is held lying on its back on a flat surface. An assistant on the child's left places his right hand on the child's forehead and his left hand on the child's occiput and extends the head to the maximum point. The chin is raised so far that the front of the neck is a flat surface from the sternum to point of chin (Fig 1) This is necessary to enable the subsequent use of artery forceps without their bows being obstructed by the point of the chin (Fig 10) A median skin incision is made 1½ inches long vertically downwards starting from the *upper* border of the cricoid cartilage. The deep fascia uniting the sternohyoid muscles is divided vertically (Fig 2). The cricoid cartilage is exposed and the fascia, attached to its lower border, is incised transversely to expose the commencement of the trachea (Fig 3) A single closed pair of pressure forceps is passed downwards and backwards close to the trachea and behind the isthmus of the thyroid gland (Figs. 4 and 5) A very slight opening and shutting of the forceps may assist their passage. The tissue thus raised is clamped close to the middle line first by one pair of forceps (Fig 6) and then by a second pair placed parallel (Fig 7) The fascia and thyroid isthmus between the forceps are then divided and the two pressure forceps are each rotated in a lateral direction through 90° and the handles are slightly depressed so as to raise the points. The rotation of the forceps usually peels the tissues from the trachea sufficiently to expose its anterior aspect, but a touch of the knife at either side will fully lay bare the front of the trachea (Fig 8) As the thyroid gland is intimately connected with the trachea and the cricoid cartilage, this manœuvre raises the trachea to the level of the skin, exposing the first four rings with utmost clearness (Fig 9) The vertical incision (through the second, third, and fourth rings) should not be made by the "guarded stab" but should be gently incised with the knife held pen holder fashion, the little finger of the right hand resting on the upper border of the manubrium. The stab is to be avoided because the trachea is flattened antero-posteriorly by thus being brought to the surface, and the posterior wall would be in danger (Fig 9)

FIG 10.

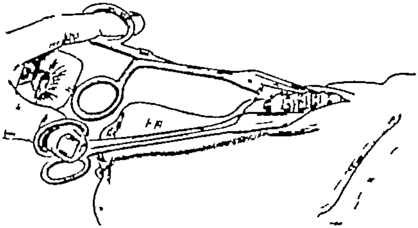


FIG 2

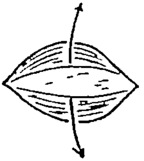


FIG 4

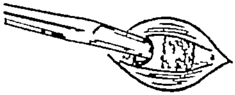


FIG 6

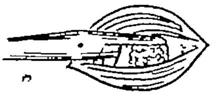


FIG 8

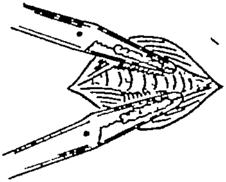


FIG 3

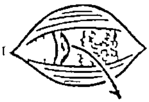


FIG 5

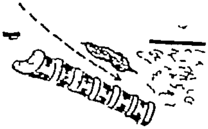


FIG 7

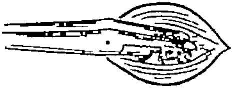
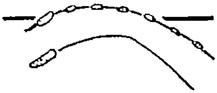


FIG 9



I am indebted to my clinical assistant, Dr S. H. [illegible] for his care in preparing the illustrations [illegible] note.

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CHILD WELFARE AND TOWN [illegible] sessional meeting of the Royal [illegible] held at the Town Hall, [illegible] at 3 P.M., when a discussion on [illegible] Centres and their Adjuncts will be opened [illegible] Dr R[illegible] Gall, Dr Charlotte [illegible] The chair will be [illegible] president of the [illegible] the Town Planning and Improvement [illegible] will [illegible] Contributions [illegible] Mr F. Marsh[illegible] and surveyor, [illegible] and Mr. F [illegible] inspector. [illegible] to the child [illegible] planning and [illegible]

# THE TREATMENT OF PULMONARY TUBERCULOSIS WITH SANOCRYSIN.[1]

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SANOCRYSIN and its complementary antituberculin serum have now been used in England by a limited number of observers for a little more than a year. We tried it on human patients because Danish workers had stated that with this drug they could arrest or cure tuberculosis when implanted experimentally in calves. The proof of such laboratory result with animals would compel clinicians to essay every possible means of adapting the treatment to human cases. Mollgaard's experiments on the calf have been criticised, but not, I think, refuted. I hope that we may hear more information this evening on that point, for it lies at the very heart of the whole matter.

Turning, then, to observations on human cases, the first question is that of the movements of the drug through the body. Sanocrysin is a very soluble thiosulphate of sodium and gold, containing 40 per cent. by weight of the latter metal. It is given intravenously as a solution in 10 c.cm. of water, and care is needed to prevent the needle from leaving an indelible black spot in the skin. For the first few days after an injection gold can be detected in the urine easily, and to a less amount in the fæces. Frandsen, of Copenhagen, has made numerous observations on human cases and found that only 30 per cent. is so excreted; the rest stayed indefinitely in the body. The only analysis of which I am aware as giving information about the places of storage of that gold were made by Mr. C. R. Harington in two of my cases that died. The tissues were ashed and the metallic gold extracted and weighed.

The first case died one day and the other 27 days after the last injection. The rapid excretion of gold in the urine is illustrated in the first case, where the contents of the bladder at death, altogether apart from urine previously voided, held nearly 5 per cent. of the gold given. But a large proportion remains stored in the body; Frandsen said 60 per cent. We recovered only 10 per cent. in the organs analysed—namely, the liver, kidneys, and lungs—but these organs formed only one-twentieth of the body-weight, and therefore the distribution elsewhere, in muscles or in the bones, as with lead, cannot be at a similar concentration. The gold tends to accumulate in the kidneys, as is shown in the second case after 27 days. In this patient it had definitely disappeared from the lungs, which were the only site of tuberculous infection. The drug is therefore not held up for long in tuberculous areas. Its concentration in the kidney was 60 times as great as its concentration in the liver. Even so this patient did not show albuminuria.

We must therefore remember, when attempting to gauge the dosage of sanocrysin, that the concentration in the blood and around the tuberculous areas falls off in a few days, but that a large proportion of the total gold given is stored in the body and that it accumulates especially in the kidneys.

### *Clinical Effects of Administration.*

The obvious clinical results of administering the drug, in a dose of ½ g. followed three or four days late by 1 g., may be briefly recapitulated. There is generally a little nausea, and the patient may vomit once or twice in the first few hours. Some complain of a persistent metallic taste in the mouth with dislike for food. There may be a slight headache. That is all, except in patients with active and well-vascularised tuberculous infections. In these the temperature rises; there is often an intense and widespread rash, scarlatiniform or morbilliform; there may be albuminuria with renal casts, but never any œdema or serious diminution of urine. The general reaction is not one of severe discomfort. But if the drug is pushed unduly there may suddenly develop alarming features, either of hyperpyrexia or of so-called "shock" with fall of temperature, a rapid and weak pulse, hurried breathing, and general collapse. Also, excessive dosage may lead to intense albuminuria, to persistent vomiting or diarrhœa, with complete distaste for food and rapid loss of weight. Most of these features were ascribed by the Danish physicians to the liberation of tubercle toxins from bacilli killed by the sanocrysin, and to combat them a special antituberculin serum was prepared. The features of the reaction in the rash, though not the albuminuria, do closely resemble those that were seen with big doses of tuberculin when that method of treatment was first introduced.

But whichever be the cause, whether the tubercle toxins or the ill-effects on the tissues of an excessive concentration of the gold salt, there is very real danger in an ill-regulated use of sanocrysin. There may be sudden or progressive exaggeration of the more serious symptoms of the tuberculous infection, or there may be a poisoning of the kidney, of the liver, and even of the skin, with a drug dermatitis that is quite distinct from the relatively transient rash. All these dangerous features are far more liable to arise in the sanocrysin treatment of tuberculous patients than in the use of salvarsan for syphilitic or other infections.

### *Results of Treatment.*

I have treated only 11 cases. Four of these may be discarded, three being of glandular or bony infection and giving no special information, while the fourth was a patient in whom no diagnosis was ever made. That leaves only seven, and two of these died. This number is far too small to justify any sound conclusions, and I can only submit the results of my own experience in the form of impressions.

In the first place, I think that the treatment has not done harm to any case under my care. This statement requires some amplification. There were two deaths during treatment, those from which the tissue analyses were made. The first was a hopeless case of tuberculous meningitis; the second was a patient with rapid and very extensive caseation, a galloping consumption of the lungs. Here one can only urge a personal judgment, that the patient was desperately ill before treatment was commenced, that he survived a month after the cessation of treatment, and that his downward progress did not seem to have been much influenced for the worse by the sanocrysin treatment.

There was a third case in which for many months I thought that harm had resulted. This was the first case treated in England. At that time the principle which we in London had received from the Danish work as a guide in our trials of the drug was that sanocrysin is bactericidal, but that the tubercle bacilli may soon become resistant to the drug. Therefore it was necessary to push the sanocrysin heavily at the outset and fight at once for victory, even at the cost of some distress to the patient. Grave reactions were to be countered by the use of the special antituberculin serum. It is likely that the acceptance of this principle led to some of the difficulties or disasters that at first were encountered in treatment. Latterly it has been the custom in Denmark and elsewhere to give smaller doses at longer intervals. Serum is then rarely needed, for the patient is not made ill by the reactions. Of course, it may be that this gentler procedure is not the best way of advancing the cure, but at present one can only judge the problem clinically, for there are no tests available on the pathological side, by examination of the blood serum or otherwise, which can serve to inform clinicians about the reactions which occur.

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[1] Being a contribution to a discussion at the combined Sections of Medicine and Therapeutics of the Royal Society of Medicine on Jan. 12th, 1926.

To return to the particular patient. She was a girl of 18, of very poor physique and with bilateral apical tuberculosis. During three months she remained in hospital under good routine treatment, yet with tubercle bacilli always present and no improvement. She was then treated heavily with 0 g. of sanocrysin and with serum, for she had two dangerous collapse reactions. Subsequently she had incessant vomiting for a week, then anorexia and loss of weight. There was albuminuria to 1 5 per cent. On discharge from hospital she was still thin and ill, but she refused to go to a sanatorium and remained at home in a quite poor environment. But she improved steadily. She has now, a year after her treatment, put on a stone in weight. She is plump and well with neither cough nor bacilli in the sputum, and the pulmonary disease is completely arrested. Her urine is normal. My earlier impression was therefore mistaken and in her case the drug not only did no serious harm, but seems to have done good, for her prognosis was originally a poor one. In all subsequent cases I have used less intensive treatment, have rarely employed serum, and have seen no suggestion of harm as the result of giving sanocrysin, but, on the contrary, the treatment has seemed to coincide with a real improvement in each patient.

### *A Specific Action?*

Secondly, the sanocrysin appeared to have a specific action on tissues infected by tuberculosis. This was suggested by an unusually inflammatory vascularisation of the tuberculous areas in my two cases which were examined *post mortem*. In other pulmonary cases which did not die there was evidence of a focal reaction in some pain in the chest, slight dyspnœa, and often an increase for a while of adventitious auscultatory sounds. There was no proof of the tubercle bacilli being killed directly by the gold salt; but the inflammatory reaction in the tuberculous areas was attended by the escape into the circulation of toxins which produced general bodily reactions similar to those caused by large injections of tuberculin. Such general reactions were seen only in patients with active and well-vascularised tuberculous lesions. But the converse deduction—namely, that a well-marked reaction to sanocrysin is proof of an active tuberculous infection—cannot yet be made, for, so far as I am aware, no clinician has tested the drug in a sufficient variety of other diseases. I tried sanocrysin in one case of tuberculosis of the cervical glands and in another of a tuberculous fistula from the shoulder-joint. There was no reaction at all and no benefit. The drug was not injected into the fistulous tract itself.

A satisfactory type of reaction occurred in a patient 18 years old, who had an acute and extensive infection of the left lung and less than two months' history of illness. On account of the apparently rapid spread of infection he was kept under preliminary observation in hospital for only ten days. An injection of 1 g., after a preliminary ¼ g., caused a prolonged rise of temperature accompanied by a generalised rash. The rash recurred briefly with the next injection. There was no albuminuria and no uncomfortable malaise. In all the patient received 4¼ g. in two months. His general condition improved rapidly after the third injection, his fever ceased, and the tubercle bacilli tended to disappear, while the cough and sputum became trifling. He went home and two months later had gained 0 lb. in weight, while feeling active and taking long walks. Subsequently he was admitted to a sanatorium from which satisfactory reports of his progress have recently been received. I think that this case was an example of an exceptionally rapid abatement of what appeared to be a serious tuberculous infection.

My impression has been that the best results are seen in patients who react at first with sharp fever and rash. The next injection must then be delayed for a week after the fever reaction or even much longer so as to ensure that the following reaction shall be of a less severe character. If the injections are spaced widely enough dangerous reactions and loss of weight can be avoided and there will never be more than a trifling albuminuria. The albuminuria is certainly related more to the total quantity of sanocrysin given and to the time intervals between doses than it is to the severity of the reactions in fever and in rash.

Lastly, I wish to refer briefly to two cases of which some account has already been published. One was a girl, aged 20, with a localised collection of fluid in the lower abdomen reaching nearly to the umbilicus. The diagnosis of tuberculous peritonitis was not proved by opening the abdomen, but there was a history of pleurisy six years before, leaving persistent physical signs and changes in the X ray appearance of the chest, and also of tuberculous peritonitis three years before. The patient was treated in hospital for three months without improvement. She was then given sanocrysin, 4½ g. in 17 days. She reacted with fever and a rash. At the end of the treatment the fluid had completely disappeared. Five months later there was nothing abnormal to be found on pelvic examination; she had put on more than a stone in weight and she has now returned to work. The diagnosis was reasonably certain and the striking feature of the case was the extremely rapid disappearance, in three weeks, of all physical signs in the abdomen simultaneously with sanocrysin treatment.

The other case was one of equally rapid improvement under sanocrysin, but in which the diagnosis of tuberculous infection was not firmly based. A boy of 14 developed tuberculous glands in the neck. These were excised and the infection in them proved. He had also had enlargement of the hilum glands in the chest. After the operation on the neck he developed signs of pulmonary infection. This continued and ultimately the X rays showed a persistent area of consolidation in the right lower lobe. But there was no sputum and there were no tubercle bacilli in the stools. The boy was under observation for four months in hospital, during which time fever persisted, and there was progressive loss of weight. When treatment with sanocrysin was commenced at the end of this time he was critically ill. He received 1½ g. in six days. There was a sharp pyrexial reaction and a rash. Soon after this his fever abated and finally ceased. He rapidly regained weight, ultimately putting on 2 st. The signs in the chest slowly lessened and three months after treatment the radiogram of the lung was almost normal.

The clinical history and, though this is rather begging the question, the reaction with fever and rash to sanocrysin do suggest that the acute pulmonary infection was due to tubercle. In any case the treatment coincided with an extraordinarily rapid recovery in a patient who up till then had been gravely ill—so no harm was done.

### *Conclusions.*

As I emphasised at the outset, the number of patients whom I have treated with sanocrysin is very small. They were selected as examples in whom any quick improvement of their diseased state would not have been expected under the ordinary routine of treatment. The prognosis of a tuberculous infection is hazardous, even for physicians with long and special clinical experience; and that I do not possess. But in the cases that I have quoted the turn for the better occurred almost simultaneously with the treatment by sanocrysin; and though coincidences do occur in a most misleading fashion in practical medicine it seems to me unlikely that all these four should have been only chance coincidences. My own opinion is in full accord with that of Prof. Faber, of Copenhagen, a physician of very wide clinical experience, who started the use of sanocrysin with perhaps a prejudice against it, but summed up his results in a statement that in sanocrysin he found a drug that produced more rapid improvement in pulmonary tuberculosis than be obtained by any other method of he knew.

# ACUTE HÆMORRHAGIC NEPHRITIS IN CHILDREN.

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THE occurrence of a hæmorrhagic form of acute nephritis has long been recognised by children's physicians in this country, and Sir Thomas Barlow referred to it in his clinical teaching at the Hospital for Sick Children, but it is noticeable that as a distinct type of nephritis it has hardly yet found its way into the text-books of medicine. Our attention was called to this condition by a striking case, recently admitted under the care of Dr. Robert Hutchison, a full account of which appears below, and a search of the records of the hospital for the last three years has revealed the fact that this type of nephritis is by no means uncommon. The clinical features are sufficiently obvious to enable a case to be placed in this category and differentiated from other forms of nephritis by a perusal of the notes. A classification of 87 cases of nephritis of all varieties, acute and chronic, is set out in Table I. In passing it may be said that we have been guided in our classification of chronic nephritis by the amount of albumin in the urine and the specific gravity, the amount of œdema, the urea and cholesterol contents of the blood, and the urea-concentration test, keeping closely to the work of MacLean.

TABLE I.—*Analysis of 87 Cases of Nephritis Admitted to Great Ormond-street Hospital during the Three Years July, 1922, to June, 1925.*

| | Cases. | Per cent. |
|---|---|---|
| Acute nephritis .. .. .. | 23 .... | 26·4 |
| Acute hæmorrhagic nephritis .. | 22 .... | 25·3 |
| Chronic nephritis .. .. | 42 .... | 48·3 |

The cases of chronic nephritis were further classified as—

| | |
|---|---|
| Chronic parenchymatous nephritis .. | 23 |
| Chronic interstitial nephritis .. .. | 19 |

of which eight were examples of renal dwarfism with bone changes.

### *Two Types of Acute Nephritis in Children.*

It will be seen, therefore, that acute nephritis in children can be classified under the two headings of hæmorrhagic, and of what has been variously called acute parenchymatous or acute "exudative" nephritis. The latter is the form described fully in most text-books, and is characterised in a typical case by general œdema, headache, vomiting, a rise of temperature, a reduction in the quantity of urine, which is albuminous to a degree exceeding that accountable for by the amount of blood which may be present during the period of oliguria. Large numbers of casts are found of all varieties and the blood pressure is often raised. The hæmorrhagic variety is distinguished from this by the occurrence of a more benign disease, in which blood appears in the urine quite suddenly, sometimes during, but usually a few days after some acute or subacute infection of the naso-pharyngeal region, and may continue to be passed in smaller quantities for several days or weeks. The question of the focus of sepsis will be discussed more fully later. There is rarely any vomiting or headache associated with the onset, œdema, if it occurs at all, is slight, seldom more than some puffiness of the eyes, which disappears rapidly. The urine is little, if at all, reduced in quantity and contains a large amount of blood, often remaining red or very smoky for several days, and the amount of albumin present can be largely accounted for by the degree of hæmaturia. In about one-third of our cases a few casts were found in the urine, and these were either epithelial, granular, or blood casts. Retinitis is not observed. There is usually no rise of blood pressure and the heart is not enlarged. The blood-urea is very seldom raised, and the urea-concentration test, where it has been carried out, is within normal limits. The condition subsides quickly in most cases, sometimes even in a few days, but usually in a few weeks, the blood and albumin in the urine gradually diminishing in almost equal proportions.

### *Ætiology of Acute Nephritis in Children.*

Streptococcal infections are the commonest precursors of acute nephritis in children, but the staphylococcus and pneumococcus may also be responsible. In our series of cases bacterial investigations of the urine have been disappointing, but in one case of hæmorrhagic nephritis streptococci were obtained from a parotid abscess, and a closely similar, if not identical, organism was isolated from the urine. With regard to a focus of sepsis it must be pointed out that while it is generally supposed that acute nephritis is associated with some such definite cause, the localisation of this source of infection is more often traceable in the hæmorrhagic than in the "exudative" or parenchymatous type, and, indeed, forms a striking feature of the former condition.

Throat affections predominate in the history of hæmorrhagic nephritis. Tonsillitis, with or without an associated otitis media, is by far the commonest cause. Cervical adenitis, carious teeth, parotitis, and pneumonia are other certain causes. Purpura, impetigo contagiosa, and naso-pharyngitis have also been cited by various authors as predisposing to this condition. Although it is true that a history of one or other of these conditions quite often precedes an attack of the "exudative" or parenchymatous variety of nephritis, yet in many cases of this type no cause can be traced. Nephritis as a complication of scarlet fever and the other exanthemata is usually believed to be of the "exudative" type.

A study of Table II., in which the clinical features of our 22 cases of hæmorrhagic nephritis are set out, and the following description of Case 14, by which our attention was first drawn to the condition, will serve to bring out certain further points which can then be discussed.

### *Clinical Record.*

CASE 14.—K. A., a girl, aged 8 years 8 months, admitted in January, 1925. In September, 1923, she ran a high temperature on and off for six weeks and passed smoky-coloured urine. In March, 1924, blood again appeared in the urine, associated with a rise of temperature, and in the attack the right ear ached and there was a discharge from it. In July, 1924, there was a further attack of hæmaturia. The child then remained well until January, 1925, when hæmaturia reappeared, and there was some pain in the right ear and a slight rise of temperature. On admission there was no œdema present save for slight puffiness under the eyes. The urine was smoky, containing blood and albumin, and a catheter specimen was free from any organisms. Microscopically, the urine contained red blood corpuscles and granular, epithelial, and hyaline casts. A cystoscopic examination revealed nothing abnormal, and specimens of urine obtained by ureteric catheterisation showed only the changes already mentioned. The blood count was normal and the complement-fixation test for tuberculosis was negative. A guinea-pig was inoculated with urine, but when killed gave no evidence of tuberculosis. The blood-urea was 37 mg. per 100 c.cm. and the blood cholesterol 126 mg. per 100 c.cm., and a urea-concentration test was normal (3·1). There was no enlargement of the heart and the blood pressure was 120 mm. of mercury.

On Jan. 23rd, 1925, Mr. Twistington Higgins ope
upon the right ear and removed some chronic granul
tissues from the tympanic antrum. Blood was still pre
in the urine when the patient developed whooping-c
and had to be sent home, where she was said to have n
a good recovery and the urine became normal in appeara
When seen on May 21st, 1925, the urine contained a t
of protein, some red blood corpuscles, and no casts.
urea-concentration test was again normal (3·9), bl
pressure was 118 mm., and there was no enlargement
the heart.

TABLE II.—ANALYSIS OF 22 CASES OF HÆMORRHAGIC NEPHRITIS, 10 BOYS AND 12 GIRLS.

| Year. | Case. | Age. | Symptoms of onset. | Source of sepsis. | Urine on admission. | Blood-urea mg. per 100 c.cm. | Urea-concentration test: maximum. | Progress in hospital. |
|---|---|---|---|---|---|---|---|---|
| 1922 (6 mths.) | 1<br>K. B. | $3^{9}/_{12}$ | Frequency. Brown urine (1 year). | Parotid abscess. | Heavy cloud of alb. Blood + +. Epith. casts. | — | Border-line, 1·9 %. | Discharged with blood in urine. B.P. 70. |
| | 2<br>E. D. | 6 | Swelling of face and legs. Dark urine. | Tonsillitis. | Alb. + + +. Blood + + +. Granular casts. | — | — | Few R.B.C.'s still present on discharge. |
| 1923 | 3<br>A. P. | 9 | Brown urine following chicken-pox. | ? | Blood +. Trace of alb. No casts. | — | Fair. 2·1 %. | Blood increased while in hospital and then cleared up. |
| | 4<br>C. A. | 6 | Discharging ear; headache; sore-throat; and bloody urine 3 weeks. | Tonsillitis. Otitis media. | Alb. + Sev. casts. R.B.C.'s +. Streptococci found. | — | — | Tonsillectomy followed by disappearance of blood from urine. |
| | 5<br>E. G. | 2 | Brown urine; puffy face, frequency; thirst. | Tonsillitis. Teeth bad. | Trace alb. Numerous R.B.C.'s. Epith. casts. | 38 | Normal. 2·9 %. | Four teeth extracted. Blood disappeared. |
| | 6<br>J. M. | $6^{6}/_{12}$ | "Thick" urine; puffy face; vomiting | Tonsillitis. | Alb. +. Blood + +. | 43 | Normal. 3·2 %. | Blood and alb. disappeared. |
| | 7<br>D. R. | 6 | Swelling of face and legs, said to follow influenza. | „ | Alb. + +. Blood +. | 10 | Fair. 2·0 %. | A boil developed and hæmaturia increased. Tonsillectomy and hæmaturia disappeared. |
| | 8<br>J. M. | $3^{7}/_{12}$ | Dark urine. Puffy feet and eyes for 3 days. | Otitis media for 14 days. | Smoky. R.B.C.'s +. Alb + +. Casts granular; few. | 30 | Normal. 3·6 %. | Blood in urine disappeared and ear ceased discharging. |
| 1924 | 9<br>D. R. | 4 | Blood in urine Swelling of abdomen, eyes. 1 month. | Tonsillitis. | Blood +. Alb. trace. | — | Fair. 2·3 %. | Developed diphtheria. |
| | 10<br>J. M. | 10 | Sore-throat and blood in urine (second attack). | „ | Alb. + +. Many R.B.C.'s. Some casts. | 11 | — | Recovered completely. |
| | 11<br>L. D. | $3^{4}/_{12}$ | Blood in urine 14 days after removal of tonsils and adenoids. | „ | Blood + +. Trace alb. | 22 | — | Recovered rapidly. |
| | 12<br>B. L. | $3^{9}/_{12}$ | Swollen cervical glands. 3 weeks. Blood in urine 3 days. | „ | Alb. + +. R.B.C.'s + + +. | — | — | Tonsillectomy followed by disappearance of blood. |
| | 13<br>C. P. | $2^{7}/_{12}$ | Urine dark. 2 weeks. Ear-ache with discharge. | Tonsillitis. Otitis media. | Trace alb. | 41 | Normal. 3·9 %. | Attack was almost over on admission. |
| 1925 (6 mths.) | 14<br>K. A. | $8^{6}/_{12}$ | 4 attacks of hæmaturia with ear discharge and high temperature. | Otitis media. | Blood + +. Alb. +. | 37 | Normal. 3·1 %. | Cleared up following operation for mastoid. |
| | 15<br>K. B. | $4^{9}/_{12}$ | *Listless; loss of* appetite; blood in urine. | Tonsillitis. Otitis media. | Blood +. Alb. +. | 178 | — | Blood and albumin rapidly disappeared. |
| | 16<br>A. S. | $7^{10}/_{12}$ | Ear-ache 2–3 weeks. Blood in urine 1 week. Ear discharge 3 days. | „ | Blood + + +. Alb. trace. | 43 | — | Blood gradually disappeared from urine. |
| | 17<br>S. T. | $5^{6}/_{12}$ | Ear-ache and discharge 1 month. Blood in urine. 14 days. | Otitis media. | Blood + +. Alb. +. | 37 | Normal. 3·0 %. | Ear discharge ceased and blood disappeared. |
| | 18<br>S. K. | $9^{9}/_{12}$ | Parotid abscess. Hæmaturia while in hospital. | Parotid abscess. | Blood +. Alb. + +. | 30 | — | Pus evacuated and blood disappeared next day. |
| | 19<br>B. B. | 8 | Sore throat 3 days. Blood in urine. | Tonsillitis. | Blood + + +. Alb. +. | 11 | — | Sent away as (?) S.F.; diagnosis not confirmed. Blood cleared on re-admission. |
| | 20<br>E. D. | 2 | Ear-ache 1 week. Blood in urine 2 days. | „ | Blood + +. Alb. trace. | — | — | Tonsillectomy and blood disappeared. |
| | 21<br>D. O. | $7^{10}/_{12}$ | Blood in urine 3 weeks. | „ | Blood trace. Alb. trace. Sev. casts. | 37 | — | Tonsillectomy and all subsided. |
| | 22<br>P. K. | 7 | Sore throat. Ear discharge 3 days. Hæmaturia developed while in hospital. | Tonsillitis. Otitis media. | Blood + +. Alb. + +. | — | — | |

### *Discussion.*

In the cases set out in Table II. it will be seen that it is not uncommon for the blood to disappear rapidly from the urine after tonsillectomy—for example, as in Cases 4, 7, 12, 20, and 21—or after the extraction of carious teeth, as in Case 5. In Case 7 the development of a boil was associated with the presence of additional blood in the urine, while in Case 18 the evacuation of a parotid abscess led to a disappearance of the blood from the urine by the next day.

A brief review of certain of the more important papers dealing with this form of renal inflammation will serve as an introduction to a short discussion of its pathology. R. S. Allison,[1] in some observations on 12 cases of acute nephritis in children grouped together six whose urine contained blood and albumin in large quantities, and remarked upon the sudden appearance of the hæmaturia in certain of these cases, which he suggested might be due to infarction. In the cases with this massive hæmaturia the blood disappeared from the urine as suddenly as it had appeared. This author did not differentiate these cases further, but they were in all probability of the acute hæmorrhagic type, which we have under discussion. Hill[2] believes that the vast majority of cases of acute nephritis in children are of infectious origin, and that more cases are secondary to tonsillitis than to scarlet fever. He classifies acute nephritis in children as acute hæmorrhagic and acute exudative, and in another paper[3] states that the hæmorrhagic type is the commoner in children. He comments on the bright red colour of the urine often seen in these cases and on the presence of only a few casts. In his cases the nephritis usually made its appearance a few days after an attack of tonsillitis, the commonest exciting cause, and lasted from 4 to 12 weeks. James[4] also makes a division of acute nephritis in children into the hæmorrhagic and exudative types. Schwartz and Kohn[5] refer to the hæmorrhagic variety and also to the more commonly recognised form which they call "nephritis parenchymatosa." In this type they found a low protein content of the blood-serum with a reversal of the normal relation of serum albumin and serum globulin. Whether this occurs or not in the hæmorrhagic type does not appear to have been determined and is an interesting point. Clausen[6] divides acute nephritis into hæmorrhagic or glomerular and parenchymatous or tubular, but this would seem to group the hæmorrhagic cases with the ordinary acute glomerular nephritis which may occur as a complication of scarlet fever for example. He draws attention to the possibility of staphylococcal infection and also to the importance of infection of the paranasal sinuses as a cause of nephritis. In discussing the prognosis of acute nephritis Osman[7] considers that it is more favourable in the hæmorrhagic cases, and states that "it appears to be almost an axiom that in acute nephritis the more the blood the better the outlook both immediate and remote." Lastly, mention must be made of a rare and curious condition described by Guthrie[8] as idiopathic or congenital, hereditary and family hæmaturia, in which blood may be present in the urine over long periods and increase in quantity in paroxysmal attacks associated with slight pyrexia. At times the urine may have the appearance of "arterial blood" and the quantity of blood passed exceeds that seen in any form of nephritis. Such cases might be mistaken for examples of hæmorrhagic nephritis, but a knowledge of the family history would prevent such an error occurring.

### *Pathology.*

Since cases of hæmorrhagic nephritis seldom come to autopsy there is no certain information as to the post-mortem appearances of the kidney in this condition. Acute congestion of the kidneys is known to occur in connexion with various inflammatory lesions, especially of a local character, and at the other extreme there is a type of embolic nephritis described by Muir[9] as a "distinct type of nephritis which is not uncommon in cases of subacute endocarditis caused by streptococci, especially the *Streptococcus viridans*." In this condition "hæmaturia is not uncommon," and sections of the kidneys frequently show blood in the tubules while there is also a patchy affection of the glomeruli. The same author points out that in puerperal eclampsia as a result of toxic action on the renal epithelium it is not unusual to get a condition of multiple infarction of the kidneys associated with hæmaturia. It is conceivable, therefore, that in acute hæmorrhagic nephritis in children there is a similar condition of multiple emboli of streptococcal origin without any widespread inflammation of the kidney substance. If the infection is prolonged it is probable that the usual glomerulonephritis or catarrhal nephritis may supervene.

TABLE III.—*Mortality Rate in 87 Cases of Nephritis.*

| | Cases. | Deaths. |
|---|---|---|
| Acute parenchymatous nephritis | 23 | 6 |
| Acute hæmorrhagic nephritis | 22 | — |
| Chronic parenchymatous nephritis | 23 | 2 |
| Chronic interstitial nephritis | 19 | 10 |

### *Prognosis.*

The prognosis in acute hæmorrhagic nephritis appears to be good. Hill, in a paper already quoted, states that death due to this type of nephritis is unknown, and none of the 22 cases here described were fatal. The mortality of the 87 cases of nephritis analysed for the purpose of this paper is shown in Table III. This only refers to cases where death occurred in hospital.

We have recently followed up the 22 cases of hæmorrhagic nephritis, and carried out a re-examination of most of the earlier ones. The results of this are shown in Table IV. The period elapsed between the onset of the nephritis and the time of re-examination varied from four months to three years, and was in most cases over a year.

TABLE IV.

| No. of case. | Urine. | Urea-concentration test: Maximum. | Blood-urea, mg. per 100 c.cm. | Cardio-vascular system.* |
|---|---|---|---|---|
| 1 | Alb. + +<br>R.B.C.'s + + +<br>Granular casts. | Poor.<br>1·9 % | 95 | B.P. 105 |
| 2 | No alb.<br>No R.B.C.'s. | Good.<br>3·4 % | — | B.P. 100 |
| 4 | Alb. slight trace.<br>No R.B.C.'s. | Good.<br>3·1 % | — | B.P. 105 |
| 5 | Alb. v. slight trace.<br>No R.B.C.'s. | — | 31 | B.P. 100 |
| 6 | Alb. v. slight trace.<br>No R.B.C.'s. | Good.<br>3·5 % | — | B.P. 100. |
| 8 | Alb. trace.<br>No R.B.C.'s. | Good.<br>4·3 % | — | B.P. 90. |
| 9 | Alb. v. slight trace.<br>No R.B.C.'s. | 2·9 %<br>— | — | B.P. 100. |
| 10 | Alb. +<br>R.B.C.'s. + | Border line.<br>2·1 % | — | B.P. 125. |
| 11 | No alb.<br>No R.B.C.'s. | Good.<br>3·9 % | — | B.P. 100. |
| 12 | Alb. v. slight trace.<br>No R.B.C.'s. | Good.<br>3·1 % | — | B.P. 85. |
| 13 | No alb.<br>No R.B.C.'s. | Good.<br>3·5 % | — | B.P. 90. |
| 14 | Alb. trace.<br>R.B.C.'s + +<br>No casts. | Good.<br>3·9 % | — | B.P. 112. |

* Heart normal in each case.

*Progress.*—Case 1: No other illness. Urine always red. Cases 2 to 14: No return of symptoms.

Case 1 shows that on clinical evidence it is sometimes possible to be misled about the diagnosis of this disease from the other forms of nephritis. With a "poor" urea concentration (1·9), and a blood-urea of 95 mg. per 100 c.cm., it is almost certain that interstitial changes are developing in a chronic form of nephritis. Case 10 is also classified on re-examination as doubtful. On the other hand, the prognosis in acute hæmorrhagic nephritis does not appear to be quite so good with regard to complete recovery of the kidneys as some authorities assert, for in only three of the cases (2, 11, 13) was the urine quite free from albumin, while in seven others there was a trace. A trace of albumin, unaccompanied by cells or casts, is not uncommon in healthy children, and is regarded as of no importance. But is it permissible to ignore the slight albuminuria which persisted in these seven cases? Our present opinion is that it may be safely disregarded, except in those instances where it is accompanied by an abnormal quantity of leucocytes and epithelial cells in the centrifugalised deposit. The urine in six of the seven cases referred to above still contained an abnormal number of cells. The patients re-examined had all kept well and had had no return of symptoms, except in Case 1, in which the urine remained "red." Cases 3 and 7 were not seen, but were reported to be in excellent health.

### *Conclusions.*

1. Acute nephritis in children can be separated into two main types. To one of these the term acute hæmorrhagic is given; the other is the more widely known variety, variously called "parenchymatous" or "exudative." 2. Acute hæmorrhagic nephritis is comparatively common. Twenty-two cases were admitted in three years to the Great Ormond-street Hospital. 3. From a study of these 22 cases this condition has been found to possess certain definite clinical features, which enable it to be differentiated. 4. Pathologically it is probably a form of streptococcal embolism of the kidneys, originating from some definite focus of sepsis elsewhere in the body. 5. The prognosis

is much better than in the other forms of acute nephritis, and as a rule no chronic inflammation of the kidneys results.

We are greatly indebted to the physicians of the Hospital for Sick Children for permission to publish their cases in this paper, and to Dr. G. A. Harrison who undertook the biochemical examinations.

*References.*

1. Allison, R. S.: Practitioner, 1925, cxiv, 3, 222.
2. Hill, L. W.: Jour. Amer. Med. Assoc., 1919, lxxiii., 1747.
3. Hill, L. W.: Med. Clin. North Amer., 1919, ii., 1419.
4. James, R. P.: Jour. Amer. Med. Assoc., 1921, lxxvi., 505.
5. Schwartz, H., and Kohn, J. L.: Amer. Jour. Dis. Child., 1922, xxiv., 125.
6. Clausen, S. W.: Ibid., 1925, xxix., 581.
7. Osman, A. A.: Guy's Hospital Reports, July, 1925, p. 306.
8. Guthrie, L. G.: THE LANCET, 1902, i., 1243.
9. Muir, R.: Text-book of Pathology, 1925.

# Clinical and Laboratory Notes.

## A NEW OPERATION FOR OPPONENS PARALYSIS OF THE THUMB.

BY B. WHITCHURCH HOWELL, F.R.C.S. ENG.,
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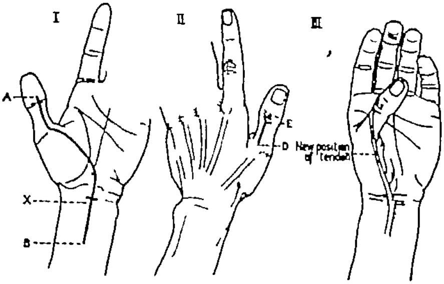
THIS operation was devised by me some years ago to improve the function of a thumb in which opposition was impossible, either on account of irreparable damage to the median nerve or permanent paralysis due to anterior poliomyelitis. The operation is, in brief, a transposition of the tendon of the flexor longus pollicis performed in the following manner.



An incision, A B, is made, extending from the ball of the thumb to several inches above the transverse creases of the wrist, and the tendon isolated (Fig. I.). A second incision, E D, is then made over the dorsal aspect of the first phalanx of the thumb, well to the ulnar side (Fig. II.). The flap, A B, is then freely and carefully undercut towards the radial border of the thenar eminence. The tendon is then divided at the wrist at X and the distal end passed subcutaneously round the ulnar border of the first phalanx and out through the incision E D. Next the tendon is passed back again through this incision, passing obliquely across the tendon of the extensor longus pollicis, and comes to lie subcutaneously on the thenar eminence. The fashioning of the subcutaneous tunnel is much facilitated by the use of the old-fashioned hernia needle on a handle (Fig. III.). The incision E D is then sewn up; also incision A B with the exception of the part near X. At this stage the thumb is held in opposition with the terminal joint of the thumb extended. The distal and proximal ends of the tendon are then united at X with chromicised catgut (20-day) and the skin closed (Fig. III.). The thumb is kept in opposition by means of plaster-of-Paris, a window being cut for the wound A B. Graduated faradic stimulation of the flexor longus pollicis is commenced on the fourth day, and the stitches are removed on the tenth. Within two to three months strong sustained voluntary opposition of the thumb is effected by the transposed tendon.

The satisfactory results obtained in some eight or nine cases have encouraged me to continue to perform the operation, and to publish this short account of it. The drawings were kindly prepared for me by Mr. George F. Bird.

## A CASE OF EUCALYPTUS POISONING.

BY L. M. CHESNEY, M.B., CH.B. EDIN.,
D.P.H. DURH.

THE case of eucalyptus poisoning recorded below is interesting as compared with the case first mentioned.

During the war a patient suffering from diarrhœa was accidentally given a dose of eucalyptus and castor oil, a mixture kept for superficial wounds, burns, &c. About four hours after the dose had been taken the person who had given it came to me to ask if eucalyptus were poisonous. I looked up Martindale's "Extra Pharmacopœia" and found a reference to a case in which 1 drachm had caused violent vomiting and diarrhœa, and another in which 6 drachms had caused similar symptoms; the ages of the patients were not given. As the patient in hospital had had about 4 drachms I felt a little anxious, but no symptoms of poisoning had developed though four hours had elapsed. It seemed rather late to use a stomach-tube, so we did nothing, with the happy result that the patient was none the worse, and was quite well the next day.

### *Account of the Case.*

A short time ago I was attending a patient who had a bad cold, and was also very constipated. I ordered a dose of castor oil, to be taken early the next morning. She also told me that she had fallen and hurt her knee. I cleaned up the wound and ordered a mixture of eucalyptus and castor oil, 15 g. each, for future use; and jokingly said, as I left the house, "Don't drink the eucalyptus mixture and put the castor oil on your knee." About 7 30 the next morning I was sent for because the patient had taken the eucalyptus mixture about 6.30 A.M. She was quite well, had no sickness or other symptoms, and in view of the other case, I thought she would be all right. About 10 A.M. I was sent for again, and found her in a peculiar comatose condition. She had been sick three times, and had apparently brought up most of the oil. She had a very little pain in the right side of the abdomen, none over the epigastrium, but could hardly be roused to answer questions; her pulse was barely perceptible, and her face was ashy grey, pupils equal and reacting to light, not contracted. I gave camphor hypodermically, hot bottle for her feet, and her pulse improved. A tumbler of warm water was retained and she was not feeling sick. I was anxious about her for an hour, as her pulse continued to be very frequent and feeble, but, after two more hypodermics of camphor, it got much better, and her mental condition improved. About noon I gave a cup of hot coffee, with 2 gr. of cit. caffeine, and ordered an enema.

By 4 P.M. the patient was very much better, there had been no more sickness, the bowels had acted twice, no smell of eucalyptus in the fæces, though the patient's breath still smelt of it, the pulse was fair, 98, regular, but she felt sleepy, and, as she said, "far away." When I saw her at 9 P.M. she had quite recovered.

It seems strange, not that eucalyptus should make a person sick, or even poison him, but that anyone should give, or take, without noticing, a drug with so strong a smell. It is also remarkable that in neither case was there any intestinal irritation, a symptom which is apparently generally present in cases of eucalyptus poisoning.

Palma de Majorca, Spain.

**HASTINGS AS A HEALTH RESORT.**—The Hastings Town Council, having taken over the White Rock baths on the sea front, intends to remodel them on modern medical lines, and the medical men of the district have collectively laid recommendations before the Council. It will probably be considered necessary to make further inquiries into conditions existing in other spas, but in the m
turkish baths are being brought up to date as an

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### COMBINED MEETINGS OF THE SECTIONS OF OPHTHALMOLOGY AND LARYNGOLOGY.

### OPTIC NEURITIS IN ITS RELATION TO SINUSITIS.

AT a combined meeting of these Sections held on Jan. 8th, Sir ARNOLD LAWSON presiding, Dr. A. LOGAN TURNER (President of the Royal College of Surgeons, Edinburgh) introduced the subject from

*The Laryngological Standpoint.*

A conjoint meeting of the Scottish Society of Otology and Laryngology and the Scottish Ophthalmological Club decided, he said, in March, 1924, to investigate a series of cases of retrobulbar neuritis in regard to the condition of the eyes and the nasal and accessory cavities, and report on them in two years' time, and he was able to give some of the results in the Edinburgh centre so far. The ophthalmological work was done there by Dr. J. V. Paterson, Dr. A. H. Sinclair, Dr. H. M. Traquair, Dr. E. H. Cameron, and Dr. Laura M. Ligertwood, the nasal work having been contributed by Dr. J. S. Fraser and Dr. W. T. Gardiner. Dr. Turner's concern in the present discussion was to speak of 28 definite cases in their rhinological aspect. They all belonged to the retrobulbar type of optic neuritis, and the natural tendency was for the vision to recover spontaneously. This was the end-result in most of the cases examined. Some operators, he said, showed an excess of zeal in interfering with the nose and sinuses in these cases, under the belief that "latent sinusitis" was the cause of many of them. In the cases under review there was an almost complete absence of any subjective nasal symptom. In two a slight unilateral nasal obstruction was found to be due to a septal deflection, while in none of the cases did rhinoscopic examination reveal the signs which the rhinologist regarded as evidence of suppurative sinus disease. In 13 of the cases the nasal accessory sinuses were normal. In seven there was a high septal deflection to the side of the affected eye, while two showed some cloudiness of the sphenoidal sinus in the skiagram. In five cases a high septal deflection was associated with œdema of the middle turbinal on the same side. In three of the patients the nose was not examined.

Dr. Turner concluded with a general summary of the facts gleaned. In none of the 25 cases nasally examined was there clinical evidence of suppurative sinus disease, and in the six cases in which posterior sinuses were opened no pus or secretion was found. In these six the cavities were healthy in three, the remainder showing slight catarrhal changes and some evidence of congestion of the mucosa. In two of the cases a septal operation was carried out. In all the cases the vision returned to normal, or nearly normal. In three of the patients septic teeth were a possible causal factor, and after they had been extracted vision was restored. Dr. Turner said that in estimating the effect on the vision of surgical interference with the sinus cavities, due regard must be had to the fact that in these cases the tendency was towards spontaneous cure, and the operation might synchronise with the time of commencing natural resolution. A further collective investigation on the subject was needed.

*The Ophthalmological Standpoint.*

Mr. M. S. MAYOU presented the ophthalmological aspect. He said that the forms of optic neuritis which were associated with nasal disease were of two main groups having very different clinical and pathological characteristics. The first were those of papillœdema due to distension of the optic nerve sheath with fluid, causing venous obstruction by pressure on the central retinal vein as it entered the globe. There was then a slow steady failure of vision, with very marked swelling of the nerve head, often resulting in choked disc. The second group were those of retrobulbar neuritis, or, as he preferred to call the condition, interstitial neuritis; and in this condition there was an inflammatory patch, or patches, into the trabeculæ of the optic nerve, causing direct pressure on the nerve-fibres and interference with their function. The only cause of the disease of which there existed positive evidence was disseminated sclerosis, but a further cause might be infection conveyed by the blood stream from such a focus as a suppurating sinus in the nose. All the physical signs of retrobulbar neuritis could be caused by pressure on the nerve exerted by a tumour, fracture of the sphenoid, or inflammatory swelling in the vicinity of the optic foramen without the nerve substance being involved.

With regard to the relationship of nasal sinus trouble to optic neuritis, papillœdema might result from a subacute meningitis following a suppurative sphenoidal sinus opening beneath the dura, or a spreading necrosis of cranial bones as a sequel of disease of nasal bones or of operating on the nose. Rarely it might follow thrombosis of the cavernous sinus. The papillœdematous type of optic neuritis in association with meningeal infection and intracranial abscess was generally admitted; it was in the relation of the retrobulbar type to nasal disease that the meeting was particularly interested. This type of neuritis had a strong tendency to recover, whether treatment was given or not. Perhaps more light might be thrown on the association of the two diseases if a methodical examination of the fields of vision were made in a series of cases of sphenoidal sinus disease. F. C. Wallis examined 45 cases of sinus disease and found general contraction in all, central scotoma five times, optic neuritis in three cases. Mr. Mayou had had a considerable number of cases of retrobulbar neuritis examined by rhinologists, but they had never yet found one in which the sphenoidal sinus was infected. But in three of his cases the antrum was full of pus, and in one the ethmoid was infected; all four recovered after those areas were dealt with. He did not doubt the association of the two diseases, but considered that it occurred only rarely.

*Discussion.*

Mr. E. D. D. DAVIS gave the results of a study of the notes of 76 cases of retrobulbar neuritis which had been sent to him for examination of the nose in order to determine the cause of the eye condition. These patients were kept under observation for long periods and were followed up. In the 76, nasal disease could be excluded in 30, in 14 there was disseminated sclerosis, in nine syphilis, in seven the teeth were septic, and in only seven was there manifest sinus suppuration. The definite diagnosis of disseminated sclerosis was very difficult, as retrobulbar neuritis was often the first sign of the disease, and might be the only one for many years. The lapse of time and the aid of the neurologist, however, settled the problem. The neuritis was unilateral in nine, bilateral in five. Mr. Davis discussed the anatomical relations of the sphenoid and posterior ethmoid cells to the optic nerve, and said that optic neuritis arising from inflammation of the nasal sinuses could be produced in the following ways: direct extension through continuity of structure, thrombosis of venous sinuses or vessels, acute nasal catarrh, toxæmia, or bacteriæmia. Of the cases which had nasal sinus suppuration, operation in three produced a dramatically rapid improvement in the sight; in the other two optic atrophy prevented such a result. Suppuration of the antrum of nasal origin was practically always accompanied by the involvement of other sinuses such as the frontal and ethmoidal. But when antral suppuration arose from the teeth this cavity alone was involved, and retrobulbar neuritis had never been recorded in the numerous dental cases which he had had under care. A careful study of charts of fields of vision of nasal cases did not show such definite characteristics as to be relied on as aids to diagnosis. Optic neuritis arising from septic venous thrombosis was rare, and in these cases the acuteness of the illness overshadowed the symptoms of blindness. He had not seen retrobulbar neuritis occurring in the course of acute nasal catarrh. If retrobulbar neuritis in a case was increasing and every other cause for the condition had been eliminated, or there was any suspicion of sinus disease, it was justifiable to remove the middle turbinal and explore the ethmoidal and sphenoidal cells; the operative risk in skilled hands was negligible.

Mr. R. FOSTER MOORE spoke, from the ophthalmological standpoint, on cases of retrobulbar neuritis, to which group he felt sure some of Mr. Davis's cases did not properly belong. The following were the outstanding characteristics of the disease: rapid loss of central vision, some pain on globe movement, or when it was pressed back, an optic disc only slightly abnormal, a pupil which contracted to light but could not maintain that contraction, and a marked tendency to recovery. It occurred mostly between the ages of 20 and 40. Infection of the paranasal sinuses was one of the rarest causes of retrobulbar neuritis. In order to facilitate the most complete examination of the cases he always admitted them as in-patients, so that all specialists concerned could do their part. He believed that in course of time a considerable proportion of Mr. Davis's 30 cases in which the cause was not ascertained would develop disseminated sclerosis. Apart from the spread of a suppurative process from surrounding structures which had caused orbital abscess or thrombosis of vessels, he had never seen a case of retrobulbar neuritis which he regarded as due to paranasal disease.

Sir STCLAIR THOMSON said he had had but few cases of the kind now being discussed, but sometimes a small number of cases carefully studied in the way Mr. Davis had shown were better pointers than large collections. A typical case of his own was that of a lady blind in one eye who was shown just before the meeting by Mr. R. A. Greeves. She had had no symptoms pointing to sinus disease, but he opened the sphenoid and she improved somewhat. Later he opened the posterior ethmoidal cells, which were the seat of cystic degeneration. Further improvement followed this, and the patient was now quite well. Of two others one recovered equally well after operation on sinuses, but the other still remained blind.

Mr. E. TREACHER COLLINS said the first case mentioned by Sir StClair Thomson had marked papillitis, but could not be classed as retrobulbar neuritis. Following the operations on the sinuses there could be no doubt about the improvement, both in the vision, the subsidence of the swelling, and the disappearance of the retinal exudation. He had not seen a case in which retrobulbar neuritis could be attributed to sinus disease.

Mr. F. A. WILLIAMSON-NOBLE commented on the fact that all cases of retrobulbar neuritis had an optic foramen smaller than normal, suggesting that one explanation of the condition might be pressure on the nerve. In some intractable cases it might be possible to reach the foramen by the subperiosteal route and enlarge it.

Dr. P. WATSON-WILLIAMS (Bristol) said that though many cases of the condition under discussion showed a tendency to recover, a considerable number proceeded to optic atrophy. Hence no stone should be left unturned to save a patient from that catastrophe. Each case should have a careful ophthalmological examination before operation was undertaken. It seemed to be the cases in which there was an absence of marked evidence of suppuration that were more likely to have toxæmic conditions. Recently he published in THE LANCET, 1925, ii., 858, two cases showing how sinus suppuration could be overlooked. The ethmoidal cells were so often involved that they seemed to lend themselves specially to lymphatic absorption involving the optic nerve sheath.

Dr. J. A. GIBB (Maidstone) spoke of five definite cases of retrobulbar neuritis in which the ethmoidal cells were infected, and in which operation on those cells resulted in complete recovery. In those patients the optic neuritis had been in existence some weeks. In another case of double optic neuritis and retinitis the urine was loaded with albumin. It cleared up and sight was restored. In a further case syphilis was suspected, and opening the sphenoid gave no visual improvement; but thorough opening of the anterior ethmoidal cells and burring of the maxillary antrum improved the vision from 6/60 to 6/12.

Mr. D. LEIGHTON DAVIES (Cardiff) said that in his experience visible changes in the optic nerve in cases of nasal sinus disease were relatively uncommon; neither was retrobulbar neuritis of the clinical type common. In most chronic cases he found that the visual fields showed definite changes, either a peripheral or a central enlargement of the blind spot, or various forms of scotoma. The most common changes were those involving contraction of the periphery of the fields. It was concentric, and concerned white as well as colour. In severe cases the fields tended to become progressively smaller until the sinuses had been opened and drained. As these cases were always bilateral the suggestion was that the condition was toxæmic.

Mr. H. M. TRAQUAIR (Edinburgh) said he had never seen a case of retrobulbar neuritis which could be traced to nasal sinus disease, except in cases in which the nasal sinus was obviously infected. There was a tendency towards some vagueness in the diagnosis of this disease, to assume that any kind of visual defect which was characterised by central scotoma and no visible macular change or nerve change to account for the scotoma, was due to an actual inflammatory condition of the optic nerve. It was necessary, he said, carefully to dissociate pressure conditions from inflammatory conditions. It was important to study the whole patient before deciding that he was suffering from retrobulbar neuritis in the sense of an inflammatory condition of the optic nerve. He and his colleagues had found that cases of optic atrophy due to retrobulbar neuritis were quite uncommon. When the disease was bilateral there was a greater tendency to recovery than when it was unilateral, and this applied specially to older persons. And he did not think any particular changes in the fields of vision could be fixed upon as peculiar to retrobulbar neuritis following on sinus disease, but general investigation of the patient might help such a classification. When the disc was normal and central vision good, and there was no orientation difficulty, contraction of visual fields should be ascribed to organic disease of the optic nerve only very cautiously.

Dr. JOBSON HORNE said that the nasal conditions and the ocular conditions which were under discussion might be quite independent of one another. Several cases had been known in which blindness followed treatment of sphenoidal sinus disease. Many cases cleared up completely after simple nasal treatment, resection of the turbinal body and the blood-letting incidental to it. He agreed with what had been said by Dr. Turner and Mr. Moore.

Mr. GRAY CLEGG (Manchester) remarked that in no case of retrobulbar neuritis had he felt satisfied that it had been due to disease of the posterior ethmoidal or the sphenoidal sinus.

Mr. A. L. WHITEHEAD (Leeds) referred to the opportunities he had had of doing both nasal and eye work, and said that in only two of his cases of optic neuritis and papillœdema, with retinal changes, could any connexion be established with sinus suppuration, and in both those the latter was very gross. Opening up of these cells was followed by some improvement of vision, limited, however, by atrophic changes in the retina. Many of the cases recorded at this meeting might equally have been due to toxic infection which had spread via the blood or lymphatics.

Before the discussion Mr. R. AFFLECK GREEVES showed a patient, a middle-aged woman, who had retrobulbar neuritis which remained practically unchanged for six months. Then Sir StClair Thomson explored the sphenoidal sinus, and this was followed by an improvement in the vision.

A relapse, however, occurred, and therefore the ethmoids were explored and drained. Following this the pupil became normal in size, though it had no light reaction, and vision became 6/5. Bacteriological examination of the material revealed the influenza bacillus in pure culture. There had never been any cycloplegia.—Sir **StClair Thomson**, who saw the case from the beginning, related the history, stating that the patient definitely attributed her improvement to the second operation. The ethmoid showed cystic degeneration with pus.

## COMBINED SECTIONS OF MEDICINE AND THERAPEUTICS.

### Treatment of Pulmonary Tuberculosis with Sanocrysin.

A combined meeting of these Sections was held on Jan. 12th, Dr. **George Graham**, President of the Section of Therapeutics, occupying the chair, when Prof. T. R. **Elliott** opened a discussion on this subject by reading the paper which appears on p. 126.

Prof. **Lyle Cummins** spoke of 25 cases which had been treated by Prof. Elliott and himself, or were still under treatment, but paid special attention to the six cases he put under this treatment six months or longer ago, on account of the interest borne by their subsequent history. In the four cases in which the result seemed very favourable and decided improvement followed the treatment there had been a relapse. It was some time before the remedy caused an improvement in the lesions sufficient to show on the skiagram. In the first of the patients there was a fall in the body-weight during treatment, but subsequently there was an increase week by week. When she left the sanatorium after six weeks—before she was advised to—she reached 11 st., a greater weight than she had ever before achieved. But she returned to unfavourable home conditions and had a relapse, and last April returned to the sanatorium where she still remained. He intended to give her a fresh course of sanocrysin. He showed skiagrams and charts on the screen of a series of cases, the former making evident the degree of cavitation present, and the latter the temperature and weight variations. He had also treated with sanocrysin a very severe case of pneumonia, with high pyrexia. It did no good, but on the other hand no trace of harm could be found as a result of its use. It was stopped because rashes and albuminuria coincided with its use. This patient died three months after the new substance was stopped. In the favourable cases of pulmonary tuberculosis the improvement following this treatment could scarcely be denied; it was very definite and rapid. Still, all had relapsed, from the standpoint of renewing positive sputum. A second course stopped the sputum and bacilli were no longer found. He thought that in order to get results it was necessary to give a rapid course. Whether sanocrysin killed the tubercle bacilli in the body or not, it certainly led to their destruction. It did not sterilise in the doses now given in a fairly advanced case.

Prof. F. R. **Fraser** spoke of the 15 cases of tuberculosis which had been treated by Dr. Harris and himself. He said that at first they used the dosages which were recommended by the Scandinavian workers, but found it advisable to depart from that scheme. The earliest case was that of a hospital porter, aged 30, who had had hæmatemesis eight years before. When seen he had tubercle bacilli in his sputum and signs of the disease were evident in his lungs, while he also had clubbing of the fingers. The first dose was ⅓ g., and this did not produce any reaction. Three days later 1 g. was given and shortly after that he had nausea and vomiting, and on the second day after the injection the temperature began to rise, and there was a great increase in the sputum. On the fourth day after injection the temperature rose to 104° F. and a "measly" eruption appeared and later spread all over the body continuing until the tenth day. Albumin appeared in the urine when the treatment began, and on the fifth day after the second injection it increased greatly, and the man was very ill; he was eating nothing, he vomited, and complained of a strong metallic taste in his mouth. There was also a thick fur over the tongue, fauces, and soft palate. On the eleventh day after the injection he seemed to have recovered from these effects, but during the treatment he had lost 10¼ lb. On the day following he was given another dose of 1 g., and this was followed by even more reaction; so great was the collapse that he was treated by serum. This febrile reaction lasted a week, and he had not sufficiently recovered for further treatment until the twenty-third day after the injection, and he had now lost 23 lb. The next dose caused a short sharp reaction, during which he again showed collapse and had to have further serum. Subsequent doses gave no febrile reaction, but he always had anorexia, increased albuminuria, and the metallic taste in the mouth. At the end of the course of injections the physical signs were but little altered, except that there were now no râles, even on coughing, and no tubercle bacilli were detectable in his sputum. Skiagrams showed a clearing of the shadows at the right apex, and the appearance of a cavity there which had not been seen before. Shortly after he went to Frimley Sanatorium the râles returned, and tubercle bacilli were again found in the sputum. He had now been again working six months as a hospital porter, and did not seem any worse for his experiences with the treatment It was decided by the speaker and his colleagues that such severe reactions must be avoided in future, as they were not likely to be compensated by any beneficial effect of the treatment. Probably the undesirable results were due to heavy metallic poisoning. Dosage was now very slowly graduated, and the treatment was stopped as soon as a single dose of 1 g. had been reached. The effects of the serum were so disappointing that they decided not to produce sufficient reaction to require its use. He quoted a series of much more favourable cases in which this precaution was adopted; commencing with a dose of ¼ g., and as there was no reaction, ¾ g. The latter was followed by a slight reaction, therefore the next dose was ⅓ g. This patient had no marked loss of weight and no severe reaction. No succeeding dose was given until five or seven days after the effects of the previous one had passed off. Finally, he said there seemed to be clear evidence that sanocrysin had some action so that recent exudative lesions in the lung were cleared more rapidly than by any other form of treatment.

Dr. J. **Tattersall** referred to ten cases which he had treated with the remedy, four of them being still under treatment. His general run of results were distinctly favourable, but most of the cases definitely lost weight while under treatment.

Dr. **George Marshall** made some general remarks on the treatment following on his visit to Denmark, where he saw 200 cases under treatment. In that country there were now only one or two physicians who were using the large doses. The preparation was especially dangerous to the patient who had had the disease only a short time; he did not seem able to resist the reaction, probably because he had not produced the antitoxin to neutralise the toxins set free by the injection. He had arrived at the conclusion that the serum did not prevent bad results. He detailed a few results of the treatment in his own experience, mostly favourable.

Dr. F. R. G. **Heaf** detailed his results of the treatment in 24 cases in Warwickshire sanatorium, starting with a dose of only 0·1 g. of sanocrysin, and going on to 0·25, 0·5, and 0·75 before reaching a 1 g. dose. His results were favourable.

Sir **Almroth Wright** spoke of the disappointment which sanocrysin had been. It had been claimed as a drug which directly attacked the tubercle bacillus and killed it. If that were so it could be given in a big dose, short of killing the patient, and it would kill off most of the microbes. It was brought in as a method of chemotherapy, but it was not that. It attacked the organs of the body also. In his laboratory experiments were made among the workers by putting the tubercle bacillus into their own blood. The tubercle bacillus grew enormously in the normal person's blood, so that after a week there were very large colonies. It was easy to take the blood and add sanocrysin to it. One drachm in the blood had no effect on the tubercle bacillus. A dose of 1 in 250 could be given and yet the tubercle bacillus would go on growing inside the blood. He concluded that the preparation had no effect on tubercle bacilli, and that he regarded as a calamity. Poisoning certainly occurred from it because it attacked many tissues of the body, but he was prepared to believe that these reactions exerted a favourable influence in some cases; indeed, many other reactions did the same. Experiments done with rabbits showed that the material had no effect on the tubercle bacilli. In the patients spoken of by others the bacilli when not found in the sputum might have been carried to other parts of the body because they subsequently returned to the sputum.

Prof. Elliott and Prof. Cummins briefly replied.

## SECTION OF SURGERY.

A meeting of this Section was held on Jan. 6th, Sir Lenthal Cheatle, the President, occupying the chair, when Prof. C. A. Pannett opened a discussion on the

*Surgical Treatment of Duodenal Ulcer*

by reading the paper which appeared in our last issue.

The President said that if he were in the unit working under Prof. Pannett he would ask that he might do post-mortem examinations on hundreds of cases, whatever might have been the cause of death, in the hope of discovering very early duodenal and very early gastric ulcers, as that was a form of spadework which really needed to be done. With regard to the possible cause of these ulcers, in the examination of animals which had died and happened to have been suffering from duodenal or gastric ulcer, the very small early ulcers were found to contain spirochætes; whether they caused the ulcers was a matter which required to be worked out. Only very early investigation would supply the solution. At present he was satisfied in these cases with the operation of posterior gastro-jejunostomy, and believed the main factor in the success of it was to make the stomach opening 4 in. in length; 2½ in. was too small, for it allowed half the stomach contents to pass through the duodenum and half into the jejunum. With the larger incision very little passed into the duodenum.

Mr. A. J. Walton did not agree that only a small proportion of cases of duodenal ulcer required surgical treatment; no proof had yet been advanced that medical means had cured or definitely improved actual ulcer in that situation. And certainly one should never wait for hæmorrhage to occur before undertaking surgical measures, especially as quite a number of these cases died from hæmorrhage, which was more fatal in duodenal than in gastric ulcer. Sometimes the surgeon was not called in until hæmorrhage had occurred, but an attempt at a diagnosis should be made as early as possible. He believed high acidity had much to do with causing these ulcers. He had never yet seen a case of pure jejunal ulcer. Post-operative ulcers started at the junction and were essentially gastro-jejunal. In 1063 operations on stomach and duodenum, pyloric and duodenal ulcers numbered 437. In order to get a correct impression as to results it was essential to have a "follow-up" department and continually to review the cases. He had had such a department at the hospital since 1917 and that enabled him to be very definite when he spoke of results. Among patients traced for two years or more after operation the cases he had lost amounted to about 3 per cent. He agreed that simple gastro-enterostomy might be followed by hæmorrhage or by perforation at the seat of the ulcer, and because of that he had advocated that this operation should be accompanied by bedding or suturing of the ulcer.

With regard to mortality, he agreed that the usual conditions in a draughty hospital ward were the worst possible for these cases. Some hospitals had post-operative wards, and if these were to become general he was satisfied there would be an improvement in the mortality statistics of these cases as a whole. He considered that the mortality after gastro-enterostomy should not exceed 2 per cent. He had found that 90 per cent. of the cases after operation were really cured, and by that he meant that a man who worked hard had no reminder that he had a stomach and could eat anything after having gone six months without medical treatment. The big danger was that of gastro-jejunal ulcer. In his 137 pyloric and duodenal ulcers, gastro-jejunal ulcer occurred in 2·5 per cent. He thought faulty technique was a considerable factor in mortality figures. The operation suggested by Prof. Pannett should not be done generally, because of the risks in less expert hands. And partial gastrectomy did not protect a patient from gastro-jejunal ulcer. The aim of the surgeon should be to practise the least interference which would cure the patient.

Mr. H. W. Carson said it must be agreed that the diagnosis of duodenal ulcer was not easy, as there was often so little to go on, and even the services of the highly skilled radiologist did not give such a high percentage of positive results as Americans claimed. Also, chemical means had largely failed. Thus one had to rely more and more on the history given by the patient, often a fallacious matter. This made it the more necessary to receive with caution Prof. Pannett's statement that the majority of duodenal ulcers were cured by medical means, a statement which he did not accept, though he agreed that duodenal *symptoms* could be medically cured. The opinion seemed to be increasing that these ulcers had a septic origin, and when the abdomen was open there should be a search for any septic focus within the accessible area. He asked whether it was the general view that the intermissions observed in cases of duodenal ulcer meant that the ulcer was then soundly healed and that the renewal of symptoms indicated that it had broken down again; also, was it right to do, in the quiescent period, a prophylactic operation to prevent the inevitable symptoms at a later date? Gastro-jejunostomy was not attended by a high mortality, and the great risk was not in the abdomen but from chest complications afterwards, and for that the surgeon must take his share of the blame. This operation, however, did not keep permanently lowered the degree of stomach acidity, and in those cases of a high activity there was reason to expect unsatisfactory sequelæ. If the latter were going to appear he thought they would do so within six months of the operation, and if not then the patient was safe. If there was trouble years after the operation he believed it could not be debited to the operation. He did not think an operation of the severity of duodenectomy was justifiable at present, certainly not for general performance.

Mr. C. H. Fagge said it was excellent that the surgeon should be able to declare that he had not seen this or that, and one of the best ways to find out what he had seen and had not seen was to deal with the primary lesion in the way Prof. Pannett advised. He (the speaker) had never seen a jejunal ulcer, but he had met with only three or four gastro-jejunal ulcers, in all of which an unabsorbable suture must have had something to do with the ulcer. All the duodenal ulcers he had seen were in the pylorus. Balfour showed by statistics that pyloric ulcers occurred in only 1 per cent. of cases, as against Prof. Pannett's 12 per cent. The majority of supposedly pyloric ulcers were really duodenal. He was not satisfied with gastro-jejunostomy in the treatment of duodenal ulcer, because an appreciable number of his cases bled after that operation. He was pleased to see William Mayo, 12 years ago, excising duodenal ulcers, and he (Mr. Fagge) had since then excised every duodenal ulcer in his cases in which he thought that was possible; the majority of them were on the anterior surface of the duodenum. In the last few years he had done excision by a horizontal incision of the duodenal ulcer, if on the anterior surface, and then suturing up the hole in a vertical direction; though it was yet early to speak of results, he believed they were as good as his former figures. Some duodenal ulcers were so small that they could easily be overlooked.

Mr. T. P. DUNHILL said he believed duodenal ulcer could be accurately diagnosed before operation, and he did not open an abdomen unless an ulcer was revealed by the skiagram. He did not think all these ulcers were of similar kind; they differed in complications and evolution, and some had fairly large hæmorrhages with long intervals between, while others were more or less continually bleeding. Most of the patients were made enormously better by the operation of gastro-jejunostomy, though he did not think the proportion was as high as Mr. Walton's 90 per cent. Medical men who had been so treated constituted an efficient "follow-up" department, and in them there was evidence afterwards of greater sensitiveness to dietetic indiscretions and to excessive use of tobacco. He had never thought it wise to attempt resection of the duodenum for large callous ulcer in which there was much penetration of the wall; the patient's life must always be the prime consideration. He kept as his sheet-anchor for these cases gastro-jejunostomy.

Mr. C. A. JOLL also thought the skilled radiologist could give a high proportion of positive diagnostic results in these cases; out of 50 cases he recently looked through, 49 had been correctly recognised in this way, the remaining one being doubtful. Most of the cases, by the time they came to the surgeon, had already had medical treatment, and he did not think there was any evidence that duodenal ulcer had ever been cured by medical means. He believed a straightforward, well-conducted gastro-enterostomy would cure 90 per cent. of the cases; when there was serious bleeding a direct attack must be made on the ulcer by duodenectomy.

Mr. C. MAX PAGE said that in the last five years he had operated on many "second-hand" stomachs, and as a result he had formed a poor opinion of the efficacy of gastro-enterostomy; he believed that the operation, as generally carried out in England, could give a high percentage of bad results. Duodenectomy he did not regard as such a very dangerous operation, and he advocated an intelligent trial of methods other than gastro-enterostomy, remembering that high mortality was always the price of a surgical departure before good results justified its general adoption.

Mr. V. ZACHARY COPE did not feel satisfied with the dogmatic statements as to the failure to cure these ulcers by medical means. Even when the abdomen was opened one could not always tell whether a duodenal ulcer was present; inspection of only the anterior wall was not conclusive. He was sure acute ulcers sometimes healed spontaneously.

Prof. PANNETT, in reply, said he did not believe in a focal infection as a cause of these ulcers. He had cultivated streptococci obtained from the wall of a sterilised ulcer and injected them into a rabbit without any result; he had done the same with *B. coli*, streptococci, staphylococci, and diphtheroids from gastric ulcer, and again with no result on the animal when injected intravenously. He therefore hoped people would not have their antra opened or tonsils enucleated before having duodenal ulcer directly treated. He agreed it was exceptional for symptoms to occur more than six months after operation. His attitude was that which had been mentioned by Mr. Max Page; he felt that if a promising new method in surgery was to be abstained from because it appeared to be dangerous, surgery would stagnate. When he did duodenectomy—which had produced, with him, 7 per cent. mortality—he did not see the small intestine, and that was the reason patients went through the operation with very little shock or other bad after-effects. Resection was the right treatment for bleeding ulcers. Hæmorrhage from gastric and duodenal ulcers was always of the secondary type.

## PATHOLOGICAL SOCIETY.

A MEETING of the Pathological Society of Great Britain and Ireland was held at the Lister Institute on Jan. 8th and 9th, Profs. C. J. MARTIN and J. C. G. LEDINGHAM presiding.

C. Da Fano (London) described the histological changes in the brains of rabbits observed during the transmission of epidemic encephalitis and contrasted them with those produced by the herpetic virus; "minute bodies," sometimes double, were abundant. With J. R. Perdrau he also dealt with some unusually severe changes in the cerebral cortex of rabbits in herpetic meningo-encephalitis, and compared them with some of the lesions of chronic encephalitis lethargica.—J. G. Greenfield (London) demonstrated the fourth English case of Schilder's encephalitis periaxialis diffusa with its characteristic perivascular degeneration of myelin sheaths and later of axis cylinders with subsequent neuroglial overgrowth.—G. S. Williamson and I. H. Pearse (London) pointed out that in fishes the thyroid is often slung in a lymph sac, and described the variations in the abundance and granulations of the mast-cell-like components of the reticulo-endothelium of the gland associated with variations in diet and functional activity.—J. S. Dunn (Manchester) found that oxalates and uranium salts caused necrosis of the suprarenal cortex which was apparently made good by active regeneration of the surrounding cells; similar changes might be produced by particles such as starch grains. He also proposed that the histological facts suggested that the outer parts of the cortex are continually proliferating and the cells being pushed into the medulla where they disintegrate.—F. W. Lamb (Birmingham) described a case of malignant change occurring in the muscular elements of an adenomyoma of the recto-genital space; the lungs were diffusely infiltrated and the alveolar walls greatly thickened by tumour tissue which appeared to be the cause of an intense polycythæmia which developed. He also demonstrated two other curious tumours.—W. G. Barnard (London), from a study of 17 cases of malignant disease about the root of the lung, concluded that the oat-celled tumours generally regarded as lymphosarcomata are really carcinomata of alveolar epithelium.—D. F. Cappell (Glasgow) described a case of malignant chordoma of the cervical spine in a man of 59.—L. Gheorghiu (Brussels and London) had made a long series of experiments on the possibility of adapting mouse tumours to grow in rats. By inoculating new-born rats he had been able to carry on a mouse tumour for 20 passages covering a year, and the tumour progressively grew better and was absorbed later. It, however, remained a mouse tumour, for it was always absorbed in the end and would not grow at all in adult rats.—R. Muir (Glasgow) restated his position with regard to the nature of Paget's disease which he looks upon as a change of rather low malignancy of the deeper layers of the epidermis, beginning usually in the ducts and spreading thence to the nipple and more rarely to the secreting acini.—H. W. Crowe (Harrogate) had obtained micrococci from the tissues of cases of rheumatoid arthritis but not from normal tissues.—T. S. P. Strangeways and R. G. Canti (Cambridge) showed and discussed the finer changes in the nuclei and mitochondria of living cells observed in vitro under dark-ground illumination.—R. P. Smith and D. W. Patterson (Newcastle) described a case of thrombo-angeitis of the lower leg in a syphilitic.—S. McDonald, T. Oliver, and W. E. Cooke (Newcastle) showed some strange bodies found in the fibrosed lung of an asbestos worker who died with chronic pneumonia and tuberculous cavitation; they resembled minute insects or larvæ and were presumed to be the remains of asbestos fibres fretted by long exposure to the body fluids.—E. G. D. Murray, M. B. R. Swann, and R. A. Webb (Cambridge) gave an account of a rabbit epidemic associated with poor spring feeding caused by a diphtheroid bacillus, scattered focal necrosis in the tissues, and a remarkable excess of large hyaline leucocytes which were specifically phagocytic towards the organism.—A. F. B. Shaw (Newcastle) pointed out that accurate leucocyte counts could be obtained only if there was a free flow of blood through the part (rabbit's or human ear); any vaso-constriction led to results which were very irregular and always much too high.—E. H. Lepper and C. J. Martin (London) showed a quick and simple method of determining the hydrogen-ion concentration of a drop of capillary blood.—J. O. W. Barratt (London) discussed the fundamentals of a hydrolytic dissociation curve.—N. D. Ball (London) dealt with the serological differentiation of species and varieties of higher animals. The brown rat cannot be distinguished from the black rat by precipitation tests; the mouse is clearly distinct from either; the white and black-and-white domestic varieties of the brown rat cannot be separated from the wild form; four fanciers' varieties of pigeons could not be distinguished from one another.—H. R. Dean and R. A. Webb (Cambridge), in a study of the precipitin reaction, found that the rate at which the precipitate appears depends on the balance between antigen and antibody; the mixture which precipitates quickest is not the one which precipitates most.—H. J. B. Fry (London) gave an account of his further work on the serum diagnosis of malignant disease; a saline- and acetone-insoluble, alcohol-soluble cholesterinised extract from carcinoma of breast gave flocculation with the sera of 75 per cent. of cases of carcinoma and sarcoma, and negative results with 75 per cent. of cases without malignant tumours.—E. M. Dunlop (Glasgow) described the fixation of the complement of normal guinea-pig serum by the typhoid bacillus in the absence of antibody, a property which could be removed by treating the serum with bacilli or coal-dust.—A. N. Goyle, J. A. Arkwright, and I. Balteanu (London) discussed the serological and immune relationships of the rough and smooth, motile and non-motile variants of typhoid and Gaertner, paratyphoid A and cholera bacilli respectively, and pointed out how the data could be interpreted in terms of antigenic structure.—P. Bruce White (Bristol) dealt in the same way with the whole Salmonella group, and indicated how those species which were specific parasites show signs of the usual parasitic degeneration either in a simplification and stabilisation of their antigenic constitution or by loss of flagella.—G. S. Wilson (Manchester) could find no clear connexion between age and virulence for mice in the Aertrycke bacillus.—W. J. Tulloch (Dundee) had promising results in guinea pigs with a protective vaccine made by killing tubercle bacilli in olive oil.—C. H. Browning and H. Gulbransen (Glasgow) said that mice were not so resistant to tuberculosis as was often supposed, and described a massive broncho-pneumonia developing in about half the animals infected by feeding and in some 10 per cent. of those inoculated.—H. D. Wright (London) found that a second injection of pneumococci disappeared from the blood much more quickly than a first injection; this acceleration began to appear in a few hours after the first dose, reached its maximum in about three days, and then persisted for months; it was independent of antibodies.—T. Dalling (London) described the titration of *B. welchii* toxin and antitoxin and the successful protection of young lambs against a fatal diarrhœa by vaccinating their mothers. With C. C. Okell he also gave an account of the successful protection of dogs against "yellows" by vaccination with a killed emulsion of *Leptospira* made from the liver of infected guinea-pigs.—A. Piney (London) dealt with the nutritive requirements in nitrogen of colon and typhoid bacilli.—N. Raw (London) showed cultures of human and bovine tubercle which had become quite non-pathogenic after cultivation for 19 years.—C. C. Okell and G. I. Steed (London) described the anæmia and jaundice following the intravenous injection of horse serum into mice, due to the natural agglutinin which is present.—Exhibits were also made by F. W. Lamb (Birmingham), Hodgkin's disease of cervical glands; W. G. Barnard (London), stenosis of aorta; A. E. Boycott (London), green alga parasitic in the snail *Limnæa*; H. M. Perry (London), skin tumours of xeroderma pigmentosum; R. D. Passey and H. E. Harding (London), transplantable cutaneous mouse melanoma; M. J. Stewart and A. L. Taylor (Leeds), carcinoid tumours of appendix and Meckel's diverticulum; T. Lumsden (London), immunity to tumours; S. P. Bedson and H. Maitland (London), foot-and-mouth disease lesions in guinea-pigs; H. M. Woodcock (London), *Glugea* of angler fish; H. Chick, H. Roscoe, and V. Korenchevsky (London), prevention of rickets in rats by pasture-fed butter; J. Kirkpatrick, colour microphotographs.

## NEWCASTLE UPON-TYNE AND NORTHERN COUNTIES MEDICAL SOCIETY.

AT a meeting of this Society, held at Newcastle on Jan. 7th, at which Dr. NEIL MACLAY presided, Dr. L. M. WEEKS read a paper on

### *Pre-Maternity Work in General Practice.*

Discussing the problem of educating patients to seek advice as early as possible, and if possible before the third month of pregnancy, Dr. Weeks said that prejudices against examination were easily overcome, and that invariably women returned of their own accord in a second pregnancy if adequate care and interest had been shown in the pre-maternity consultations for the first pregnancy. At the first consultation in the early months a pelvic examination was not necessary unless there was a history of frequent miscarriages in a woman with a negative Wassermann, or in cases of slight hæmorrhage suggesting ectopic gestation. Rather should the first consultation be devoted to a routine inquiry into previous illnesses, previous menstrual history, history of previous pregnancies, and present symptoms, followed by a clinical examination of the heart, lungs, and urine. This was the time to give the woman advice in general rules of health during the rest of pregnancy, with warning to report such symptoms as would suggest pyelitis, miscarriage, placenta prævia, or eclampsia. Teeth with the tendency to decay should receive special attention.

After this there should be monthly examinations of the urine up to the eighth month, when a further examination should be carried out to determine the position of the fœtus by abdominal palpation. A breech or transverse presentation should then be corrected to a vertex by external rotation and the correction should be maintained by pads and binder. An occipito-posterior should also be corrected. In these cases a further examination should be carried out two weeks later and special attention should be paid to the recognition of that type of case in which the head was high above the pelvic brim at this stage, freely movable and not descending. Some interference with the lower uterine segment should be suspected in these, such as contracted pelvis, false promontory, fibroids, placenta prævia. In these circumstances a pelvic examination should be done and the true conjugate measured. The important deformity termed funnel-shaped pelvis should also be looked for. The great value of these pre-maternity examinations was that the type of case likely to require Cæsarean section or other special treatment could be recognised before labour began.

Mr. H. HARVEY EVERS gave a short address on *Albuminuria during Pregnancy*, and a discussion followed in which Dr. W. HERBERTSON spoke with enthusiasm of the help he had received by the routine antenatal examination of 150 of his cases in a general practice among industrial patients. Any scepticism or suspicion on the part of the patient was quickly swept away, and he had no hesitation in saying that the adoption of a definite pre-maternity scheme in general practice was one of the greatest advances in preventive medicine.

The rest of the meeting was devoted to a demonstration of clinical cases.

# NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

At a meeting of this Society held at Liverpool on Dec. 18th last, Dr. John E. Gemmell, the President, delivered an address on the

## *Progress of Obstetrics and Gynæcology during the Last Forty Years.*

He said that before 1885, when he graduated at Edinburgh, the only pelvic operations he had seen were perineorrhaphy, trachelorrhaphy, the cauterisation of hæmorrhoids, and one ovariotomy, which was performed by Thomas Keith with much ceremony in an isolated room at the Royal Infirmary. Gynæcology was then a small subject, chiefly limited to out-patient and consulting-room work, not free from the taint of quackery, and sometimes a target for the shafts of the satirist. Dr. Gemmell gave an interesting description of the changes wrought since then, describing, for instance, how the work of many surgeons led up to the modern extensive abdominal hysterectomy for carcinoma of the cervix associated with Wertheim's name. The science and art of gynæcology, he said, now stood upon a firm basis, and it should not be forgotten that the pioneer work of the ovariotomists had paved the way for successful surgery in the upper abdomen.

## *The Ganglia of the Cervix Uteri.*

Dr. Arthur Gemmell (Liverpool) said that the study of the nerve-supply to the uterus was receiving renewed attention, but the function of this nerve-supply had been more fully recorded than its anatomy, and nothing had been written on the pathological changes associated with gynæcological diseases. Most observers were now satisfied that the uterus was supplied mainly by the sympathetic proper (the white rami from the lower dorsal and first and second lumbar nerves), via the inferior mesenteric ganglion and hypogastric plexus to the ganglia of the cervix uteri and thence to the uterus itself. All authors agreed that there were cervical ganglia, and some postulated others in addition. They gave only scanty information as to the site of the cervical ganglia, but placed them at about the level of the internal os. Dr. Gemmell said that his work had been done on whole specimens removed by Wertheim's hysterectomy. No definite attempt has been made to investigate the presence or absence of intramural ganglia, but in none of the sections examined were any such seen. Dissection of the ganglia, even with the aid of dissecting binoculars, was found to be impossible, and so a block of tissue centred on the uterine artery was cut out of the parametrium. This included a piece of uterine wall, and the whole of it was examined by serial sections. Latterly this block had been divided into four and the postero-inferior portion of it cut serially. The ganglia were always found by this method if they were present, and it appeared that they lay internal to the ureter, posterior to the uterine artery, and at a little distance from the uterine wall. Sections were studied from six patients who died from various diseases not involving the genital organs, and in all these cases ganglia were found. The ages of these patients varied from 7 months to 65 years.

Dr. Fletcher Shaw (Manchester) asked whether Dr. Gemmell had examined the parametrium behind the uterus. He had been very much struck by the excessive amount of shock shown by patients when he had enucleated tumours or growths from this region and had often thought that this part must be especially well supplied from the sympathetic system.

Dr. Leith Murray (Liverpool) remarked that an extension of malignancy from the cervix had been observed in these ganglia and along the related nerves. Dr. Gemmell's interesting research might be important from that point of view.

Dr. Gemmell, in reply, said that he thought that there were some variations in the positions of these ganglia, as in some specimens he had been unable to find them anywhere in the parametrium available. There was the possibility that interference with the ganglia might account for the shock following Wertheim's operation. The utero-sacral ligaments and posterior portion of the parametrium had not been examined as it was thought that there was more chance of finding sympathetic elements along the vessels.

## *Locked Twins.*

Prof. Miles Phillips (Sheffield) reported a case of impactions of twins, one of the rarest forms of obstructed labour. The patient was a primigravida and twins had been recognised by her doctor at an antenatal examination a week before she came into labour. The fœtal heart-sounds were easily heard at both sides of the abdomen. Labour began at 7.30 a.m., the pains being weak and irregular; but by 10.30 a.m. on the following day the cervix was fully dilated. The contractions were then strong, no progress was made, and Prof. Phillips saw the patient at 12.30 p.m. The uterus was not in tonic contraction, but was contracting so frequently that it was impossible to palpate the fœtal parts. No fœtal heart-sounds could be heard. The patient was anæsthetised and placed in the lithotomy position. A head was visible, low in the pelvis, unduly soft, with a large caput and the skin peeling. By passing a hand alongside the head a rounded mass—apparently a second head—could be felt at the pelvic brim impinging on the neck of the presenting child. It was impossible to push the second head out of the pelvis, and a tentative pull with forceps on the lower head failed to move it. The first head was obviously becoming macerated, and so, after perforation to afford the necessary room, the neck was cut through with curved scissors, the head withdrawn, and the trunk pushed aside. The second head, soft and pulpy, then entered the pelvic cavity and was easily extracted with forceps. This child was also dead. The children were males, weighing 5½ and 5 lb. respectively. No liquor amnii was seen and nobody could state when the bag of membranes ruptured. The placenta weighed only 1 lb.; otherwise it appeared healthy, both macro- and microscopically. It might well be that a relative placental insufficiency had caused the death of the fœtuses, either just before, or during, the not very protracted labour, as it was thought that at least one fœtal heart had been heard on the day before delivery. The single chorion showed a central opening about 4 in. in diameter. The amniotic membrane was in two portions, each attached to the root of the umbilical cord, and, over a limited area, to one another. At some time during the pregnancy this had been perforated. At numerous other cases of twin labour which Prof. Phillips had seen, two distinct sacs had existed, the second presenting and being ruptured after the delivery of the first child. Such an arrangement appeared to render collision of the two fœtuses extremely unlikely. On the other hand, the loss of all the liquor amnii from two communicating sacs would conduce to this very rare complication.

Miss Frances Ivens (Liverpool) mentioned that she had had a case of locked twins some years ago. The patient was a primigravida. After considerable delay in the second stage, the first twin was felt presenting by the vertex, and the second lying transversely with its neck very much elongated and stretched across the neck of the first. The transverse twin was dislodged and pushed upwards by the hand in the uterus. The first was then delivered by forceps, and the second presented as a vertex and was also delivered by forceps.

Dr. Daniel Dougal (Manchester) referred to a case admitted to St. Mary's Hospital, Manchester, as a "failed forceps" case. Under anæsthesia a hand passed into the vagina found that the advance of the first child was obstructed by the head of the second one. Delivery was easily effected by pushing the second out of the way. The first child was dead;

this was probably due to injuries during previous attempts to deliver with forceps. Both children were small, and this might account for the second head being able to pass into the pelvic brim and so cause obstruction.

Dr. Gordon FitzGerald (Manchester) had seen a case in which the first fœtus presented by the breech and the second was a vertex presentation. Number one was born as far as the umbilicus when the patient was admitted to hospital. Investigation showed that the chin of number one was locked on the chin of number two. Liberation of the head of number two was impossible, and, accordingly, as number one was dead, it was decapitated. The delivery of number two was then easily completed. There was, however, some difficulty in extracting the head of the first fœtus.

Prof. H. Briggs (Liverpool) remarked that in the absence of the actual fœtuses he gratefully accepted Prof. Miles Phillips's clinical description as exact and complete. In the laboratory of practical obstetrics Prof. Briggs had utterly failed in experimentally locking twins, and he was unprepared to accept reports of fœtal incidents or complications within the pelvic cavity or at the brim of the pelvis in the second stage of labour, unless the whole of the hand of the obstetrician had been previously placed within the pelvic cavity.

### *Exhibition of Cases.*

At the end of this discussion Dr. D. Dougal reported two cases of vaginal myoma.

Mr. W. W. King (Sheffield) described a case of chorion-epithelioma in which a metastatic growth was present at the vulva during the course of an intra-uterine pregnancy, and Dr. FitzGerald exhibited a specimen showing adenomyoma of the recto-genital space and sarcoma of the ovary.

## EDINBURGH OBSTETRICAL SOCIETY.

At a meeting of this Society held on Dec. 9th last, Dr. R. W. Johnstone, the President, occupied the chair, and Prof. Ranken Lyle (Newcastle) read a paper on the ethical and scientific aspects of the

### *Prevention, Conservation, and Destruction of Intra-uterine Life.*

Prof. Lyle began by saying that the whole trend of medical thought about the conservation of intra-uterine life had been slowly changing during the last 25 years and that the child's life was now considered nearly as important as the mother's. The intrinsic duty of the medical profession was to preserve and prolong life—that is, the life of the ovum—from the period of gestation to the death of the individual. At one time patients used always to be sterilised after Cæsarean section, but now Prof. Lyle considered sterilisation to be an insult to surgery; it prevented a woman carrying out her mission in life. He himself had only once sterilised a patient after Cæsarean section—25 years ago—and had performed Cæsarean section as often as seven times on one patient. Induction of abortion for medical reasons ought to be prohibited. Nearly every case of hyperemesis gravidarum could be cured by hygienic treatment, suggestion, and psychotherapy, and toxic cases which required abortion to be induced were very rare. In tuberculous patients pregnancy should be allowed to go on without interruption, as also in those with heart disease—at any rate until the later months when pressure was being caused by the growing uterus, when the question of induction of labour or Cæsarean section must be considered. Chorea gravidarum very rarely nowadays warranted induction of abortion. Cæsarean section had taken the place of craniotomy on the living child, which was never necessary, and by this the maternal as well as the fœtal mortality would be greatly improved. Cæsarean section was also taking the place of bipolar version as the treatment for placenta prævia, and the operation had considerably lowered the fœtal death-rate without increasing the maternal mortality. Even in cases of prolapse of the cord, especially in a primipara, Cæsarean section was advocated to save the child's life.

Antenatal care had been instrumental in revolutionising abnormal obstetrics and preventing the majority of cases of difficult labour. By this means eclampsia had been checked to a large extent, with a great saving of both mothers' and children's lives. Abnormal presentations could now be rectified before the confinement, and breech, face, and transverse presentations could be converted to normal vertex positions. This allowed many children to be born alive who would have died had the case not been under antenatal supervision. By antenatal examination contracted pelves could be diagnosed early and the necessary treatment decided upon before labour was begun. This was very different from seeing the case advanced in labour at a time when any treatment was likely to be dangerous to both mother and child.

### *Discussion.*

Dr. Haig Ferguson said that Prof. Lyle aimed at high ideals, but sometimes these were unattainable. He did not agree that Cæsarean section cases should never be sterilised; he thought that if a woman had been through the ordeal of three Cæsarean sections she had a right to be sterilised if she so desired. Where the induction of abortion was contemplated the interests of the mother should be considered before those of the child if they clashed, and in his opinion the operation should be permitted in some cases of tuberculosis, insanity, diabetes, recent heart disease, and hyperemesis gravidarum. Craniotomy was a repugnant operation, but in domestic practice it was sometimes necessary.

Dr. W. Fordyce agreed with Dr. Ferguson that the maternal life was the first consideration. He thought that the cases of hyperemesis gravidarum in Newcastle could not be quite so severe as they were in Edinburgh, where induction of abortion was in some cases the only treatment possible to save the mother's life. He was sure, also, that some cases of chorea gravidarum warranted obstetric interference. Dr. Fordyce agreed with Prof. Lyle that Cæsarean section was desirable in cases of central placenta prævia in primiparæ.

Prof. B. P. Watson said that when a certain treatment had been found for hyperemesis and other conditions, no fœtal life would have to be sacrificed; but at present there were cases that defied all treatment, and in these abortion had to be induced to save the mother's life. With regard to sterilisation after Cæsarean section, the patient's view must be taken into consideration, and this was especially desirable when the operation was being performed for a decompensated heart lesion. There were some cases which warranted craniotomy; for example, a primipara badly lacerated with a raised temperature and the fœtal head jammed in the pelvis.

Dr. James Young was surprised at Prof. Lyle's assurance that 80–90 per cent. of children could be saved by Cæsarean section in cases of placenta prævia, and thought it a strong argument in favour of such an operation. He agreed with Prof. Watson on the value of craniotomy in the definitely septic case.

Dr. Farquhar Murray (Newcastle) considered that craniotomy was never justifiable on the living child, but on a dead child it might be performed when the head was low down and easily accessible.

Dr. Keppie Paterson thought that craniotomy on the living child was still a necessary evil.

The President said that antenatal care alone could help obstetricians to reach the high ideals of Prof. Lyle. At present, he thought, there were still some cases which required induction of abortion and craniotomy. Sterilisation by deliberate operation was hardly ever justified, but after several Cæsarean sections it was often indicated in the best interest of patients.

Prof. Lyle, in reply, said that in 1900 one Cæsarean section had been regarded as an indication for sterilisation. At the present meeting three was the number suggested. Ten years later the number would still be increasing, and soon seven would be reached. Cases of hyperemesis should be treated early, before jaundice came on; up to this year he had never induced abortion in such cases, and he had only seen one patient die. Cæsarean section, he was convinced, would give better results than craniotomy even in septic cases.

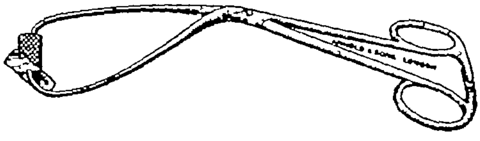
*Post-mortem Cæsarean Section.*

Dr. G. W. YULE read a communication on a case of post-mortem Cæsarean section in a twin pregnancy, with survival of one child. A primigravida, aged 25, an albuminuric, eight and a half months pregnant, who had been about 12 hours in labour, was anæsthetised in preparation for the application of low forceps to terminate the labour. Some degree of hydramnios was suspected, but no signs of either maternal or fœtal distress were noted. Upon a catheter being passed she suddenly collapsed and was apparently dead; all attempts at resuscitation, including tracheotomy, failed. Fully five minutes after death had occurred Cæsarean section was performed and a child was extracted. This child failed to respond to treatment, but when the surgeon was preparing to close the abdomen, fully ten minutes after the patient's death, a second child was discovered. It was at once removed, responded to prolonged treatment, and left hospital quite well ten days later.

# New Inventions.

## NEW CLAMP FOR USE AFTER TONSILLECTOMY.

THE instrument here illustrated has been designed primarily for use in enucleation of tonsils by the blunt guillotine. The square-ended blade is fitted with a small piece of rubber sponge (1⅛ in. by ¼ in. by ¾ in. approximately; a piece of the common "Sorbo" ball can easily be cut to the required shape, slit to receive the blade and sewn on), and a small gauze bag made with a purse-string thread at the neck is slipped over the sponge at the time of operation and the thread pulled tight. The other blade is covered with a piece of rubber tubing. The instrument is applied immediately after the enucleation of the tonsil—the sponge-covered blade to the tonsil bed and the other blade behind the angle of the jaw. A clear field for the removal of the second tonsil is then left. When both instruments are applied bleeding is prevented. Two instruments—right and left—are required for each operation. In emergency in case of reactionary hæmorrhage this instrument may also be useful.



I am indebted to Messrs. Arnold and Sons (incorporating John Bell and Croyden, Ltd.), from whom the instrument can be obtained, for help in carrying out the experimental work in the making of it.

C. D. AGASSIZ, M.D. Aberd., M.R.C.P. Lond.
Brentwood.

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REVISION OF THE PHARMACOPŒIA.—The Pharmaceutical Society of Great Britain has accepted the invitation of the Pharmacopœia Committee of the General Medical Council to send two delegates to a conference on general questions connected with the revision of the Pharmacopœia to be held in London on Feb. 23rd at 11 A.M. The other bodies that have been invited to send delegates are the Ministry of Health, the Royal Society, the Royal Society of Medicine, the Medical Research Council, the British Medical Association, the Physiological Society, the Chemical Society, and the Linnean Society.

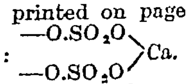
# Reviews and Notices of Books.

## THE CHEMICAL ANALYSIS OF FOODS.

A Practical Treatise on the Examination of Foodstuffs and the Detection of Adulterants. By HENRY EDWARD COX, M.Sc., Ph.D. Lond., F.I.C., Public Analyst for the Metropolitan Borough of Hampstead. London: J. and A. Churchill. 1926. With 38 illustrations. Pp. 323. 18*s.*

THE significance of pure food for the welfare of the community needs no emphasis to our readers. The busy practitioner may have little time to spare for the study of the technical details of food analysis, but will be glad to have accessible a readable account of the main outlines of the methods employed in the examination of foodstuffs and of the nature of the adulterants commonly met with. This volume, though addressed primarily to chemists, is written from the point of view of the requirements of public health and of the Sale of Food and Drugs Act rather than that of the worker in a particular branch of the food industry, and is not too technical to be appreciated by those without special experience

The first chapter deals with analysis of sugars, treacle, honey, jam, and marmalade, and opens with a brief survey of the characters of the commoner sugars and the methods employed in their identification. The emphasis upon the melting points of the pure sugars would seem unduly insistent in view of the relative unimportance of this constant compared with the crystalline form and melting points of the respective osazones, which receive but scant mention, while the characteristic phenyl hydrazone of mannose is entirely ignored. Among the methods given for the estimation of sugars it is refreshing to find the iodometric method of Willstätter and Schudel; on the other hand, no mention is made of Bertrand's convenient and reliable method for estimating sugars. That the author is quick to avail himself of new methods is shown by the fact of his having adopted the process published only a few months ago by King (*Analyst*, 1925, l., 371) for the estimation of agar-agar in jam; this method is based upon the recognition within recent years by Haas (*Biochem. Jour.*, 1921, xv., 469) of the occurrence of ethereal sulphates in the mucilaginous extracts of a number of sea-weeds such as Irish moss. In this connexion we observe that the formula printed on page 41 is incomplete and should read:



$$\left.\begin{matrix}-O.SO_2O\\-O.SO_2O\end{matrix}\right\rangle Ca.$$

The second chapter, which is devoted to starches, cereals, flour, bread, custard, and blanc-mange powders, contains drawings of starch grains derived from 24 different sources; attention is drawn to the recent work of Woodman (*Jour Agric. Sci.*, 1922, xlvi., 231), offering a chemical interpretation of the meaning of "strength" in flour. The approved methods of carrying out the Marsh, Berzelius, and Gutzeit methods for estimating arsenic are also described. The third chapter contains some interesting data concerning the composition of eggs and egg oil which are not usually to be found in books on food analysis. In the fourth chapter some account of the nature and methods of estimating pectin are given in connexion with the analysis of fruits; this is a subject which has come to the fore within recent years, and its inclusion in this volume is welcome. The estimation of the total acidity of fruit is facilitated by the use of a simple type of hydrogen electrode here described for the electrometric estimation of hydrogen-ion concentration. The fifth and sixth chapters are devoted to the analysis of tea, coffee, cocoa, and spices. In the seventh chapter the method described for estimating sulphur dioxide in wine is of importance in view of the recent Public Health Regulations which permit the use of this preservative in alcoholic wines. The examination of flesh foods, sausages, and potted meats is dealt with in the eighth chapter; attention is drawn to the occurrence of arsenic in fresh fish, and figures are given for the amounts of this element shown by the author's analyses to be present in a number of well-known and commonly consumed fish. The ninth and tenth chapters are concerned with the analysis of milk and milk products and of butter and cheese, and the last chapter is devoted to fats and oils. In an appendix the Public Health (Preservatives, &c., in Food) Regulations, 1925, which are to come into force on Jan. 1st, 1927, are well summarised; the main provisions of the two schedules are given in small compass.

The whole book is thoroughly practical, and describes in an intelligible manner methods of food analysis which can be trusted to give reliable results.

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### SURGICAL METHODS.

*Methods in Surgery.* By GLOVER H. COPHER, M.D., Instructor in Surgery, Washington University School of Medicine. London: Henry Kimpton. 1925. Pp. 282. 11s.

THIS book consists of a description of the routine methods employed in the surgical divisions of Barnes Hospital, St. Louis Children's Hospital, and Washington University Dispensary, including outlines for case-history taking, and instruction upon pre-operative and post-operative care of patients and diets. It is for the guidance of the house officers and students working in the hospitals enumerated above, and while much of the material is of a very special nature and of interest only to these individuals, some of the suggestions and instructions may appeal to a wider field and prove of use, especially to those who have to devise schemes of work for the surgical sections of other hospitals. The book is thoroughly up to date and includes, for example, full information for the carrying out of cholecystography by Graham's method.

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### ABDOMINAL AND PELVIC SURGERY.

For Practitioners. By RUTHERFORD MORISON, M.A., D.C.L., LL.D., M.B., F.R.C.S., Consulting Surgeon, Royal Infirmary, Newcastle-on-Tyne; Emeritus Professor of Surgery, Durham University. London: Oxford University Press. 1925. Pp. 212. 8s. 6d.

ONE of the most difficult problems the practitioner has to face is the differentiation of serious from minor complaints of sudden onset. The lives of most sufferers from acute abdominal disease lie in the hands of the family doctor. Unless he recognises its early signs the efforts of the most skilled surgeon are of no avail. To help him in detecting such serious conditions promptly Mr. Morison has written this book. The task could scarcely have been done more effectively. The outlook is designedly simple and the author insists only on essential things.

The book is a welcome addition to the series of small handbooks emanating from the Oxford University Press, which will be read through with interest and kept for reference.

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### RECENT ADVANCES IN PHYSIOLOGY.

By C. LOVATT EVANS, D.Sc. Lond., M.R.C.S., L.R.C.P., F.R.S. London: J. and A. Churchill. 1925. Pp. 301. 10s. 6d.

SCIENTIFIC investigation of biological problems usually proceeds to-day along one of two general routes. In the first place a *tissue—blood*, muscle, or nerve—may be removed from its normal physiological surroundings and studied in its reactions to varying conditions of physical and chemical environment. An analysis of these reactions is attempted in terms of physics and chemistry. Clearly this field becomes the playground of those scientists whose familiarity with the character of inorganic reactions interests and justifies them in applying this knowledge to comparatively simple biological, or comparatively complicated physico-chemical, systems. The basal mechanism is the investigator's bait. In the second place the reactions of a tissue or organ, retained as far as possible within its normal physiological environment, may be studied in its relation to the activity of other organs. Here we are dealing with a far more complicated state of affairs, and in the absence of a knowledge of the reactive mechanisms of all the tissues involved, we have to confine ourselves largely to the description without essaying the interpretation of the phenomena studied. An attempt is made to study the interdependence of various organs and so to correlate their activities the one with the other. This is the field of the experimental physiologist.

Prof. Lovatt Evans in this book has condensed into a comparatively small space a description of the progress made by physiologists during the last few years along the lines indicated above. The book is divided into 11 chapters, and it is interesting to note that half of them are devoted to blood and the circulation, showing in no uncertain manner the great importance which must inevitably be attached to the study both of such a fundamental problem as the "internal medium of the body" and of the mechanism and regulation of its supply to the tissues. Following an excellent account of the capillary circulation a chapter is devoted to the mechanism of tissue oxidation, from which the reader is naturally led to an account of the mechanism of muscular contraction in both its chemical and physical aspects. The application to the physiology of muscular exercise in man of the results of researches on the chemistry and physics of contraction forms the title of another chapter, in which a remarkably clear account is given of recent work from A. V. Hill's laboratory. A description of recent work on the active principles of the thyroid, pituitary, and pancreas fills a further chapter, and the book is concluded by two fascinating accounts of the recent work of Magnus on the mechanism of postural reflexes and the functions of the labyrinth and of that of Pavlov and his school on conditioned reflexes. The book is intended for "the more seriously-minded students reading for an intermediate examination for a medical degree" and also "for the guidance of students preparing for honours examinations." It will doubtless gain the wide circulation it deserves, not only amongst those who are studying for the higher examinations but also amongst those who are actively engaged in biological research. There are a few misprints which can be made good in a future edition.

We congratulate the author on the attractive and instructive manner in which he has written the book. Its production must have entailed a large expenditure of time in sifting the diluted literature of contemporary physiology and of thought in its condensation into such a small compass.

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### THERAPEUTICS.

*The Art of Medical Treatment.* With Reference both to the Patient and to his Friends. By FRANCIS W. PALFREY, M.D., Visiting Physician, Boston City Hospital; Instructor in Medicine, Harvard University. London and Philadelphia: W. B. Saunders Company. 1925. Pp. 403. 21s.

ONE striking feature of this book is noted in the subtitle, "With Reference both to the Patient and to his Friends." The patient's friends do not, of course, require treatment, but they do require explanations, and the proper handling of anxious and, it may be, interfering relatives is an integral part of the treatment of most cases of illness. This subject is here touched on in a way which is, so far as we know, unique. The practitioner, in his earlier days, finds that the medicine given to his patient is but a part of his treatment, that nursing arrangements are equally important, and that the management of the friends is often the most harassing part of the case. [illegible] Palfrey even goes so far as to note the management, in the above sense, of the local health and [illegible] With these various ideas in view, each [illegible] dealt with under definite headings, some of [illegible] worth naming, if only for their [illegible]

*Thoughts* introduces the subject, gives broad lines of treatment, and notes matters demanding emphasis; *Placing* gives items of posture and environment; *Supportive* denotes the means of supporting the patient against the disease; *Information* tells us what can be said, subject to considerations already discussed, when the facts are to be told; *Preventive* includes precautions and reports. Apart from these special features the book itself is just a straightforward exposition of treatment in general practice. If it does not go deeply into out-of-the-way methods, it at least lays down the ordinary means of treatment clearly, and should prove a good friend.

*Favourite Prescriptions.* By Espine Ward, M.D., West African Medical Staff. London: J. and A. Churchill. 1926. Pp. 96. 5*s.*

Every medical man in practice collects prescriptions consciously or unconsciously. The wise generally have some small interleaved book in which they write them down, and it is not a bad plan to make a hospital pharmacopœia the basis of such a collection. That which Dr. Ward has published is a sound one, and is offered in interleaved form.

*The Book of Prescriptions.* With Notes on the Pharmacology and Therapeutics of the more important Drugs. Eleventh edition. By E. W. Lucas, C.B.E., late Member of the British Pharmacopœia Reference Committee; and H. B. Stevens, O.B.E., late Lecturer on Pharmacy and Food and Drugs in the South-Western Polytechnic Institute. London: J. and A. Churchill. 1926. Pp. 382. 10*s.* 6*d.*

A book in its seventieth year—the first edition, by Henry Beasley, was issued in 1856—and its eleventh edition is certainly worthy of note. Perhaps pharmacology and prescriptions conduce more to the long life of a book than, let us say, surgery. The frequent repetition of official pharmacopœias maintains a standard of freshness, whereas in surgery, even though a book is kept up to date for a certain time in its facts, its framework tends to get out of date and out of repair. We can congratulate the writers, who are two eminent pharmaceutical chemists, on the age and the freshness of this work. It treats of medicine from the pharmacological and pharmaceutical side rather than the purely medical one. Recent introductions receive full notice and prescriptions are given illustrating the use of many of the drugs. This is a handy little book of reference.

Colloidal Gold.

*Kolloidforschung in Einzeldarstellungen.* Vol. II. Edited by R. Zsigmondy. *Das kolloide Gold in Biologie and Medizin.* By Ernst Joël. Leipzig: Akademische Verlagsgesellschaft. 1925. Pp. 115. M.6.

This little book contains a complete account of the uses of colloidal solutions of gold in biological and medical work. It commences with a very brief account of Zsigmondy's early observations upon the precipitability of colloidal gold solutions by electrolytes and with the protective action of various other colloids. The gold members of various proteins and fluids are then dealt with, after which Lange's reaction with the cerebro-spinal fluid is discussed. The clinical application of this reaction in the diagnosis of syphilitic lesions of the nervous system is reviewed and particular stress is laid on the recent work of Eskuchen. The use of colloidal gold solutions in the study of proteins is next dealt with, whilst the volume concludes with a very short chapter on the gold numbers of blood serum, urine, and gastric juice. A fine series of references is included at the end, though the author has overlooked some rather important English work; for instance, a paper by J. Cruickshank is not referred to at all, whilst the work of J. Mellanby and T. Anwyl-Davies receives too brief mention.

## JOURNALS.

British Journal of Ophthalmology, November and December, 1925.—In the November number the chief place is given to the discussion on miners' nystagmus at the Royal Society of Medicine last February, which was chiefly remarkable for the variety of views represented. It seems to be generally admitted that oscillation of the eyeballs in dim light can be explained by the physiological properties of the fovea centralis, and the fact that as large a proportion as one-quarter of all miners working underground in the dark do develop latent nystagmus—i.e., can be shown by suitable tests to have oscillating eyeballs—strongly suggests that this view is correct. As to whether improvement in lighting is a sufficient remedy there appears, however, still to be a remarkable divergence of opinion. The orthodox view that lighting will prevent nystagmus is here represented by T. Lister Llewellyn and J. S. Haldane. Others, including M. Culpin and the late C. F. Harford, look upon miners' nystagmus as a neurosis analogous to shell shock or "railway spine." F. Robson maintains his thesis that the gaseous emanations from certain sorts of coal are mainly responsible for the condition, while Prof. E. L. Collis and G. H. Pooley blame the compensation laws. In their view these encourage a large number of men with defective health or defective will to become pensioners on the industry because they can actually obtain more money by this means than by any other open to them.——In the December number H. Neame is partially responsible for two papers. The first, of pathological interest, describes a case of endothelioma of the optic nerve; the second, of clinical importance, is on glaucoma secondary to choroidal sarcoma. Of 402 cases excised on account of glaucoma, approximately 10 per cent. were found on pathological examination to contain a choroidal sarcoma; 4 per cent. were blind glaucomatous eyes in which there appears from the clinical notes to have been no suspicion of the existence of a new growth. This establishes the urgent importance of enucleation in the case of blind glaucomatous eyes, in which ophthalmoscopic examination is not possible.

Medical Women's International Journal. Vol. I., No. 2. November, 1925.—The second number of the organ of the Medical Women's International Association, which is to be published twice a year, contains a foreword by Lady Barrett, President of the Association, setting out some of the ways in which medical women of all countries united in an association may hope to serve the world.—Reports follow from seven of the twenty national corresponding secretaries, notably from Dr. Helga Meisen (Denmark), Dr. Hermine Heusler-Edenhuizen (Germany), Miss Louisa Martindale (Great Britain), Dr. Curjel Wilson (India), Dr. Szczawinska (Poland), Dr. Marie Feyler (Switzerland), and Dr. Kate Mead (U.S.A.). These give some account of the work being carried on by medical women, collectively or individually, in the respective countries.—Reports of an international congress on child welfare, held in Geneva in August, 1925, are contributed by Dr. Cornaz-Wyler and by Dr. Elizabeth Sloan Chesser.—Dr. Alice Hamilton describes the fourth international medical congress of industrial accidents and diseases held in Amsterdam in September, while Dr. Agnes Savill deals with the International Congress of Radiology which took place in London last June.—Original articles include an abstract of a paper read by Dr. Clelia Lollini at a congress of medical women held in Milan in 1924, on women in connexion with the struggle against tuberculosis.—Dr. Alice M. Pennell contributes an article entitled A Medical Woman in India.—Dr. Esther Loring Richards writes on the Psychiatric Aspects of Child Welfare, and Lady Berry, M.D., on International Work and the M.W.I.A.—The first of a series of articles dealing with Post-graduate Research Work being carried out by medical women in various countries and a few reviews conclude the number.

THE LANCET.

*LONDON: SATURDAY, JANUARY 16, 1926.*

## THE COUNTY PATHOLOGICAL SERVICE.

THE offer by a county council to provide a comprehensive pathological service for the county is no new idea; and to those who have not grasped exactly either what the proper employment of a pathological laboratory is or the position of those who have to render the necessary expert service, the idea appears sensible and progressive, and has received advocacy. But for some time it has been obvious that, unless such a service, in so far as it is comprehensive in what it is prepared to do, recognises that a proportion of its benefits ought not to be offered gratuitously in all circumstances and to all comers, the working out of the idea may be mischievous, while the highly important section of the medical profession devoted to pathological work may be placed at an extreme disadvantage. In the report of the Medical Research Council for the year 1923–24 the position of the sciences of pathology and bacteriology, on which so much of the current work of medicine depends, was briefly reviewed and was not considered altogether satisfactory, mainly because the departments of pathology and bacteriology at many universities were built up on a basis of commercial work, and in conditions likely to disturb research and to monopolise the time of a professor and his staff, to the detriment of better things. Let us remember that valuable criticism in considering the circumstances that may arise out of hasty and ill-devised schemes for the provision by counties of a pathological service. It is not denied that many universities were aided very substantially in the equipment of teaching from the commercial value of the work done by the professors, and the procedure can be held justified, as an interim course, both because the universities were carrying out duties of public utility and were earning money which was spent upon the provision of facilities for research, but no one wants to see such sources of revenue confirmed as an ideal of attainment.

Now we see the hope expressed that, by development of the competency of local authorities to provide a public pathological service, the need for the trading activities of the universities will disappear. This may be so, and is a powerful reason for watchfulness lest the pursuit of bacteriology and pathology should suffer under ill-directed action by county councils, whereby the conditions under which the best qualified students of these subjects outside the universities might lose proper scope and opportunity. The whole matter has come to the fore recently under separate aspects, but all are parts of the same picture. The pathological facilities offered by the Staffordshire County Council have been considerably criticised. Here the situation has been discussed by the Council of the British Medical Association, when the position of the Association was defined by Dr. H. B. BRACKENBURY, the chairman of the Representative Body, and it was concluded by the meeting to refer the questions at issue to a special committee, with a reference to consider the policy of the Association in regard to the work of the private practitioner in pathology, and to pathological laboratories advertised by commercial firms. In both connexions it must be insisted that the private practitioner has public duties as pathologist to his hospital, and private relations with medical practitioners in his environment. We have before us a list of the tests which can be done in the laboratory of the Staffordshire County Council, which is a development of the V.D. centre for Wolverhampton, and though situated in the grounds of the county voluntary hospital is distinct from the pathological department of this hospital. From this schedule it seems that the practitioners of the county can obtain results of a comprehensive assortment of tests gratuitously, in all circumstances, and for all classes of patients. If a county can supply such inclusive and minute pathological and bacteriological assistance, and for all classes of patients, without any money passing, while commercialism may be truly said to be removed from the county authorities, and while the authorities may be relieving the universities to some extent from the activities at which the Medical Research Council has looked askance, it would seem that these desirable issues will be obtained at the expense of any medical man in the county desirous of practising as a bacteriologist and pathologist. This position, were it to become general, would not only be a serious threat to the material prospects of a highly equipped body of medical men whose numbers are increasing as the intimate relations of their special work with medicine and surgery becomes more and more obvious, but it may destroy that very quality of intimacy upon which the value of expert pathology mainly depends. If the medical activities of county councils should develop wrongly, not only will the standing of private pathologists be gravely jeopardised, but all the value which is so rightly laid upon close coöperation between the practitioner and the pathologist will disappear. Surely it is only by having pathologists available for consultation that this coöperation with private practitioners can be maintained; and surely, also, any tendency to regard a county laboratory as a slot machine for its neighbourhood, ready to engulf a bottle of urine, sputum, or what not, and to return a diagnosis and a bottle of vaccines, is a line along which scientific medicine can never progress. The pathological laboratories attached to commercial firms already are in competition with much of the work of individual practitioners, and they are able to call attention to their productions in a direct way in which private pathologists cannot follow them. This is a point upon which some of the pathologists attached to charitable institutions feel sore, and quite intelligibly, but such rivalry is without the unfair elements that exist where a county council organisation enters the lists. For the laboratory of the county council is rate-supported, and obtains its subsidy in earnest of its public health work. All the good that the county council laboratory can do in public health directions is rightly done for the public, and the rates pay; but the rate-supported service is designed for public health work, and when a county council proposes to give gratuitous assistance in the form of medical diagnosis in other directions its action cannot be justified, in relation either to the progress of science or to the proper interests of scientific workers.

The action of the Staffordshire County Council is particularly unfortunate at this juncture of time, for the report of the Royal Commission on National Health Insurance is expected to make recommendations which will hopelessly complicate the proposed procedure in Staffordshire. Common foresight would have suggested waiting to see whether the Royal

Commission will or will not recommend that under the medical benefits given to the insured there shall be provided a pathological service of experts. If this occurs, all that pathological work which lies outside the confines of public health would naturally be undertaken by individual pathologists for the most part in the laboratories provided in the voluntary hospitals. These pathologists would be the experts whom the practitioners of the district will consult for their panel patients in accordance with a statutory scale, and for their private patients in response to proper fees. The extension of medical benefits which is expected will demand a proportionate increase in the number of medical men working at pathology whose services, while partly at the disposal of the panels, should also be available for other than the insured population, and these will not be expected, or expect, to accept the advantages gratuitously. In other words, the expert pathologist, like the medical practitioner in other branches, will give of his best in response both to those who pay through the State and to those who pay individually. The natural centres for the work of these men will be the laboratories attached to the voluntary hospitals which are, on the one hand, acting as centres for the insured patients of their districts, and which, on the other hand, provide a medical staff for coöperation with the practitioners of the neighbourhood. Proper arrangements between the great commercial firms and the medical profession can be looked for safely, but the competition of county laboratories becomes a serious matter for the private pathologist when a county council, at its laboratory, proposes to do what does not come within the proper purview of a county authority.

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## HOUSING AND HYGIENE.

Have we turned the corner as regards the housing problem? The Minister of Health, in whom the members of the public health services have great confidence, appears optimistic; last month he stated in the House of Commons that more houses were built during 1925 than the annual average during the building boom at the beginning of the century, and that more schemes for slum clearances were submitted and confirmed in the six years 1919 to 1925 than in the 24 years before the war. All that is good hearing, but Dr. F. E. Fremantle was right when he emphasised that what was wanted now was goodwill and national endeavour. Of late years the job of building has largely passed out of the hands of the private builder into those of the local sanitary authority and of the Government. Whether this transfer is temporary and accidental, or marks a permanent tendency in the conduct of affairs, even the clerk to the London County Council has not made up his mind.[1] In any case the housing question needs to be lifted out of the ruts of trades-union politics and party dissensions, and medical men should take every opportunity of using their special knowledge for the general enlightenment. For medical men there has been sufficient evidence in the past as to the effects on health of bad housing to make comment appear superfluous, but because the doctors and the statisticians know the connexion between the prevalence of diseases in various localities and the housing accommodation in those localities —its character, the number of rooms per house, and the rest—it does not follow that the public is equally well informed. No pains should be spared to advance cogent arguments as to the relation between bad housing and bad health. The families which occupy the worst houses are generally the worst off in all other respects, and this may disguise the most fundamental of their drawbacks, which is their home.

What are the essentials of a healthy home? During the debate on Dec. 18th last in the House of Commons Sir Leslie Scott referred to the 2246 back-to-back houses of Liverpool as being unfit for anyone to live in for a week. We are hardly in a position, however, to damn all houses of the back-to-back type without particular consideration. In his report for 1924 the medical officer of health for Leeds states that, although more than two-thirds of the houses in that great city are built back to back, about half of them are of a type which does not differ appreciably in healthiness from through houses. Only two-thirds of the deaths from all causes in Leeds during 1924 occurred in these back-to-back houses—in other words, they had their proper proportion of deaths. But no health officer has any doubt that on the whole disease is more prevalent and more fatal in bad than in good houses. Exact evidence on the question is, however, singularly lacking, although we may well hope that it will be made good in the five-year survey which the Minister of Health has asked for to accompany the 1925 reports. Some indications may, however, be quoted. Dr. Stanley Banks, in his recent report for the Burgh of Motherwell and Wishaw, states that there are 13,965 inhabited houses in his burgh and that 72·3 per cent. of the population live in houses of one or two rooms. The notifications of tuberculosis, he finds, are higher in the very small houses; the 19 per cent. of the population who live in one-roomed houses contributed 35 per cent. of the notifications of tuberculosis for the period 1921 to 1924. Dr. Banks also deals with the incidence of other infectious diseases on the persons living in houses of each class during the years 1923 and 1924, and says that the attack rate of scarlet fever and diphtheria "hardly varies at all with size of house," but for pneumonia "the attack rate is considerably higher in the one-roomed and to a lesser extent in the two-roomed house." Speaking generally, it is notorious that we have had exceptionally low death-rates during all this period of bad housing. It is possible that a better educated people has to some extent been able to rise triumphant over its housing troubles. There have been signs, however, during the last year or two of a set-back to the progressive improvement of the tuberculosis death-rate. To turn to morbidity, Sir John Robertson believes the amount of rickets in such "flatted" towns as Glasgow, Munich, and Chicago to be ten times as great as in the towns where cottages predominate.[2] Dr. Austin Priestman's recent inquiry into adenoids and otorrhœa among Folkestone school-children leads him to regard overcrowding and insanitary conditions as almost the sole factors in their production.[3]

Until the 1925 reports come in from the public health service most people will be content to rest the case for better housing on the tribulations of houseless families in every part of the country and on those conditions which make the decencies of life utterly impossible. There is more than enough evidence before the public already to show that this problem is urgent and must be faced. The peculiar knowledge of doctors, however, and the fact that the public health is more the concern of the doctors than anyone else, make it necessary that they should leave no stone unturned in promoting national endeavour and in rousing the national conscience. In a letter published in our columns, a correspondent offers the kind of evidence—evidence of failure—which must be brought home to the nation, and pleads for the coöperative effort which ought to be a main contribution of the profession to the political and social life of to day.

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[1] Sir James Bird: Housing and What it Does for London. Hodder and Stoughton. 6d.

[2] The Health of the House: What the Modern Dwelling Needs to be. Faber and Gwyer (the Scientific Press). 1925.

[3] The Medical Officer, Jan. 2nd, 1926, p. 8.

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## MALARIA AND INDUSTRY.

A HAPPY discrimination is shown by the public demand which has necessitated the re-issue, in the *Indian Journal of Medical Research* for October, 1925, of two Government publications[1] under the title "Two Malarial Surveys Connected with Industrial Projects in Certain very Highly Malarious Localities in India." Both these industrial concerns are, in fact, situated in areas where malaria is hyperendemic.

The first comprises about 10,000 acres of a wide, almost level, plain of high grass jungle interspersed with swamp, near the foothills bounding the valley of the Brahmaputra to the north. Habitations have been placed where they would interfere least with agricultural operations—namely, on trimmings of land lying along swamp and stream which breed those recognised malaria carriers *Anopheles listoni* and *A. minimus*. In the layout of the estate it was clearly not recognised that malaria might determine the commercial value of the undertaking and that the first procedure should have been a malaria survey to determine, within the area selected for cultivation, the most suitable housing site—which in this instance would have been the central plot of the estate. As a result 91 per cent. of the children had, at the time of the inquiry, palpable spleens. Owing to heavy invaliding the staff of Europeans, mechanics, and servants is constantly changing, recruitment is a difficulty, and the cost of training the new staff considerable. Regarding a remedy, and writing with personal knowledge of the subsoil drainage system which has so successfully combated malaria in the Federated Malay States, Colonel CHRISTOPHERS held this procedure to be here financially impracticable. It will, however, be recollected that Sir MALCOLM WATSON himself visited, in 1924, a large group of tea estates in Upper Assam, where *A. maculatus* and *A. minimus* are abundant, instituted a system of subsoil drainage designed to strike at their breeding-places, and expressed little doubt that malaria would soon be under control.

The other industrial venture concerns mines in the Singhbhum District of Bihar and Orissa. The mining camps lie in alluvial-bottomed valleys within the hills. Inspection was made during three weeks of the cold season. The average spleen-rate in children was 69. The basis of the inquiry, perhaps the first instance on which this has been attempted from the hygienic aspect, is a quantitative determination of the degree of infection by malaria parasites in the cutaneous blood; and the conclusions to which it leads are striking. By spreading a determined quantity of blood in a thick film upon a determined area of slide, examining this with a square-apertured ocular giving a field of determined size, and counting the parasites in 200 square fields, the number of malaria parasites in a cubic millimetre of blood was estimated. It varied, where they were detected, from 4 to 131,282; 85 per cent. of parasites came from those who had lived on the estate for two years and under. In those who had been born on the estate the similar percentage was 92. Infection in the second year of residence approximated to 100 per cent., and the average parasite value was over 12,000 per c.mm. Now the number of parasites always associated with febrile attacks of 103° F. or over seemed here to be somewhat under 5000 per c.mm. and Colonel CHRISTOPHERS calculates that, by his figures, which apply to the cold, non-malarious season, hyperendemicity is to be associated with an infection so intense that it practically amounts to a continuous attack, with over 10,000 parasites per c.mm., extending over a period of two years. This stage is designated as "acute infestation." Over the age of 2, while the proportion of children infected is as high as ever, the average number of parasites falls to 1200 per c.mm. between two and five years, and to 1000 between six and ten. This stage is designated "immune infestation." Similar figures apply to immigrant non-immune children, at least during the first two years of residence. Correlating these counts with enlarged spleens, it was found that a spleen projecting 4 to 6 cm. from the costal margin (correction being made to a sitting height of 60 cm.) was that associated with acute infestation. It is concluded that the net result of passing childhood under hyperendemic conditions is the acquirement of a form of immunity. The parasitic forms found were almost uniformly rings of 2 to 3 $\mu$ in diameter, identified tentatively as *Plasmodium tenue* Stephens, 1914. The readiness with which Colonel CHRISTOPHERS will be followed on this point will depend on the extent to which it is believed that the differences on which this form is separated from *P. falciparum* are reliable, when there is used, as is customary with malariologists, a mode of preparation which is rejected for other protozoa as giving no reliable information regarding structure. Gametocyte formation was associated with heavy infection of the cutaneous blood and with the period of acute infestation. The proportion of gametocytes to rings was 1 to 390. Of adults, 51 per cent. were found infected and the average number of parasites was 100 per c.mm. It is concluded that this peculiar relationship of low value of infection and high percentage of infected must represent immunity in the adult. In them, as in children, crescents were associated with the heavier infections.

These considerations have this practical value, that the present labour is "salted," and not in such urgent need of protection as are "non-immune" persons. Observations of the 15 species of anopheles discovered point to *A. listoni* and *A. culifaciens* as primarily implicated in infection, with *A. willmori* as an unknown element of danger. In the matter of preventing breeding there is a short length in one ravine held suitable for treatment along the lines of subsoil drainage so extensively and happily employed in the Federated Malay States. For the rest it is concluded that the most fundamental work open to the Company is the choice in the first instance of situations for lines, quarters, and bungalows that are either naturally free from liability to anophelism or can be made so with the least difficulty. If outside labour be imported from relatively non-malarious parts serious incapacity is to be expected, and the choice of suitable situations for their lines would become almost the only practicable antimalarial measure which would not be excessively costly. The fundamental error of both these large industrial concerns is, then, that they have been instituted in hyperendemic areas without any prior effort being made to determine how even minimal infection of the staff could be avoided. Their present heavy financial handicap is the direct result of their failure to obtain sound sanitary advice before launching into heavy expenditure.

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[1] I. Report on Malaria at the Assam Sugar Estates and Factories, Ltd., Nalbari, Assam, 1921. II. Inquiry on Malaria, Blackwater Fever, and Ankylostomiasis in Singhbhum, 1923. By Lieut.-Colonel S. R. Christophers, C.I.E., O.B.E., I.M.S., Director, Central Research Institute, Kasauli.

# Annotations.

"Ne quid nimis."

## LONDON PORT SANITATION.

Dr. W. M. Willoughby reports to his Sanitary Committee that no case of plague, cholera, typhus, or small-pox had to be dealt with during 1924 in the Port of London; no plague-infected rat was found; the 21,783 aliens arriving were clean, healthy, and louse-free; and the food and sanitary inspections were carried out satisfactorily. In April of that year a number of foreign medical officers were shown the Port, and especially its methods for dealing with infectious disease. The most important duty of a port authority is to prevent the importation of infectious disease and unwholesome food; infection is kept out more easily now that port medical officers everywhere pool their knowledge. Bulletins telegraphed from ports abroad enable the authorities to get a clear idea of the prevalent epidemics, and incidentally render obsolete the system by which ships are still expected to bring with them a mass of papers dealing with the public health at their ports of call. The chief problem at present is plague, and the necessary destruction of rats. A ship is mentioned —obviously that referred to in the health report [1] of Cardiff Port—which was suspected and was carefully examined in London and Cardiff without any rats being found. Two cases of plague occurred on board before she reached Port Said, and when she was fumigated at Suez ten rats were killed. Forty rats were reported to have been killed in a fumigation four months previously. The infection probably occurred in South America, whence she had carried a cargo of grain. After discharging this she was loaded with coal, and the rats must have gathered themselves round the pantries; a steward's boy, whose cabin was next a pantry, got right and left femoral buboes. Dr. Willoughby, to whom so much of our knowledge of the epidemiology of plague on board ships is due, remarks that there may quite well be an outbreak of plague on board a ship even if it has only few rats, provided that they become infected and that there is no particular attraction for them in the cargo in the holds to keep them at a distance from the crew. Port health reports record not only cases of infectious disease which have been seen, but also those which occur during the voyages of the ships entering harbour. This accounts for the frequency with which small-pox and tubercle are mentioned. Of small-pox, 12 cases occurred among crews and five among passengers, but in no case did the disease spread, thanks to the immediate vaccination of contacts. Of the 66 cases of pulmonary tubercle landed in London, 16 were taken care of by the Seamen's Hospital Society, along with 30 cases of other forms of tuberculosis. Malaria caused much illness on board a ship at Bombay. Her third officer fell ill with malaria on the eighteenth day after arrival there, by which time the ship had reached Port Said on her way back, and died on the twenty-seventh day. There were no other deaths, but 8 Europeans and 16 natives of the crew were infected, and had to be sent to the care of the Seamen's Hospital Society as soon as they reached London. Bombay has lately gained an unfortunate reputation for spreading malaria, both in the Navy [2] and in the Mercantile Marine. A story is told [3] of a ship disabled at Karachi in 1924 on account of half the crew being down with malaria contracted at Bombay. But in fact the progress that has been made at Bombay in stamping out malaria is remarkable, considering the situation and social life of the city. At the present time there is a certain amount of malaria on nearly all ships trading with India, and it is constantly present amongst native crews. It cannot be expected, however, that Bombay can abolish the disease and thus protect all sailors entering the port, although the progressive reclamation going on in the harbour will in time reduce malaria. What is required is a far more generous distribution of quinine to crews visiting Eastern waters. Dengue is mentioned as often attacking ships during voyages, especially in voyages from Calcutta. 187 seamen came to notice suffering from venereal disease. In ships 14,922 rats were killed, 13,742 in dock warehouses; 64 ships were fumigated with sulphur (29 rats killed, on an average), and seven ships with hydrocyanic acid (80 rats killed, on an average). About the docks two brown rats are killed to every black (or plague-carrying) rat. It seems to be suggested that it is safer to fumigate the whole of a ship at one time; in one case the holds only were fumigated with sulphur dioxide, and no dead rats were found, but after a later fumigation 55 rats were found in the crew's quarters, where they may have found harbourage during the earlier partial fumigation.

There were 16,455 inspections of ships, and 210 were found defective; 2509 nuisances or sanitary defects in ships were reported and dealt with, the most numerous being dirt, smoke, bad lighting, leaks, defective ventilation, and improperly kept sanitary conveniences. 3000 tons of foodstuffs were condemned as unfit for human food, and 130 tons were destroyed. Actinomycosis was found in 1·5 per cent. of ox-tongues but in 5 per cent. of "ox-tongue roots," and 463 quarters of formalinised frozen beef were destroyed owing to the formalin having made the beef indigestible and so unfit for food. Cashew nuts with maggots in them were condemned, in spite of the protests of the importers, and permission to re-export was refused. Permission was also refused in the case of spinach which had been greened with copper sulphate, 5 gr. to the pound. Unboiled periwinkles were found to be spreading typhoid in the neighbourhood of Southend. The question of latrines about the docks is having attention, and new by-laws for houseboats in the river up to Teddington Lock, to secure them good drinking water, avoid nuisance, and prevent infectious disease, have come into force.

This is a valuable report, which should give the public confidence that it is being well protected against the importation of unsound food and infectious disease by the Port Sanitary Authority of London.

## CATCHING DISEASES EARLY.

"To educate the public in the care of its health" is the aim of the Middlesex Hospital Press Committee, and amongst other activities it has issued nine Health Leaflets for distribution. These have the following titles: Cancer of the womb; What should be known about cancer; The "change of life"; Infantile diarrhœa; Care of the teeth; The prevention of deafness; House flies and disease; Eye-strain; and Precautions to be observed by tuberculous patients. They have been written by members of the staff of the hospital, and medical officers of health and others are urged to use them as propaganda. So far over 36,000 have been sold to health authorities, and the committee allows these to print their own names at the head of the sheets if due acknowledgments to the hospital are made. The price shown on the sheets is 2*d*. each. As an example of the leaflets may be quoted that which deals with the prevention of deafness. It starts as follows:—

> "Severe deafness, unless due to wax, is rarely curable, but in many cases something can be done either to relieve it or prevent its increase. Slight deafness, especially if it has not lasted long, is much more often curable, hence in all cases expert medical advice should be sought directly impaired hearing is noticed. There are three principal causes of deafness: (1) wax or similar material blocking up the ear; (2) diseases of the mouth, nose, or throat; and (3) poisons which circulate in the blood and affect the nerve of hearing."

These statements are perfectly clear. When, however, the author later says "This [change in the drum] is especially likely to occur when the inflammation is chronic and due to nasal obstruction, mouth-*breathing, repeated sore-throats, or chronic nasal catarrh,*" we have some doubt whether he will carry all his readers intelligently along with him. The instruction of the leaflets is lucid and, on the whole, simple; but here and there expressions should be made even easier. Each leaflet might be submitted to a person of average intelligence for translation into the vernacular as far as this can be done without destroying its effect upon educated people. After a useful series of comments the writer on deafness continues:—

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[1] THE LANCET, 1925, i., 1051.

[2] Navy Health Blue-book, 1922, p. 61.

[3] Arch. f. Schiffs- u. Tropen-Hygiene, October, 1925, p. 487.

> "The reader who has glanced through the above may regard it as a somewhat depressing story, but though little can be done to cure deafness, excepting in the earlier stages, there are various mechanical contrivances which magnify sounds and assist hearing, just as glasses give help in errors of sight. . . . The only way to cure or prevent deafness is to treat the causes that produce it, and *good can only be done in the early stages of the trouble.* Hence it is imperative not to delay, but at once to seek expert medical advice directly the slightest impairment of hearing is noticed."

The italics are ours, but they are reduced from the capital letters in the original. They may well form the war-cry of those who are trying to educate the public in health matters. Such publications as those of the Middlesex Hospital have as their object the awakening of personal alarm. In a neurotic generation this may seem superfluous; but counsel such as these pamphlets give may provide that extra stimulus which makes a nervous person face hearing the worst and at the same time it may save unimaginative people from disaster. And apart altogether from the attempt to arouse the right kind of self-consciousness in health matters—always a difficult task—there is much information in the leaflets that will be helpful to the people for whom it is intended.

## ROYAL SOCIETY OF MEDICINE.

SINCE their inception in 1919, the social evenings organised by this Society have been popular and well attended. The first of those arranged for the coming session will be held on Feb. 1st, at 8.30 P.M. Sir StClair Thomson, President of the Society, will receive the guests, and at 9.30 P.M. Dr. F. J. Poynton will give a short illustrated address on The Part Played by Doctors in the Early Days of Aeronautics. Later in the session Sir Humphry Rolleston will speak to a similar gathering on Some Worthies of the Cambridge Medical School, while the address planned for the evening of March 1st by Dr. Gustave Monod will be entitled From Cagliostro to Coué, or Imagination as a Method of Treatment. Dr. Monod is not the only distinguished foreigner whose visit is expected by the Society, since the Dermatological Section have invited Dr. C. Levaditi, of the Pasteur Institute, Paris, to address them on Recent Advances in the Chemotherapy of Syphilis. This lecture should prove attractive to members of most other sections of the Society, and may well form the occasion of a large and representative gathering.

Ci Md. 6337

## FASCIOLOPSIS INFECTION IN CHINA.

THE *American Journal of Hygiene* is performing a useful service to international hygiene by publishing a series of monographs, the most recent of which deals with fasciolopsiasis or infection with the intestinal fluke, *Fasciolopsis buski*, from the pen of Dr. Claude H. Barlow, of Shaohsing, China. It was in 1843 that Mr. George Busk, F.R.C.S., first discovered this very large trematode worm in the duodenum of a lascar who died in the Seamen's Hospital, and the parasite was named by Lankester in 1857, but it is only recently that the life-history and clinical effects of this fluke have been worked out. As now elucidated, the life cycle closely resembles that of the common liver fluke, *Fasciola hepatica*, and thus differs from the more typical trematode cycle in that the cercarial, or infective, stage escapes from its intermediate snail host and passes its encysted stage on certain pond plants, which constitute a local article of food. With these facts available, prevention of human infection would appear to be eminently simple, but it does not follow that such a conservative population as that of central China is likely to be greatly impressed by the promulgation of the scientific facts of the case or to derive immediate personal benefit therefrom. The theoretical simplicity of the prophylactic problem bears some analogy to that of hookworm, but the practical difficulty may be no less great. Fasciolopsiasis, however, appears to be a less serious affection than ankylostomiasis or schistosomiasis, its principal clinical features being intestinal disturbances and, in chronic cases, œdema. Interest in Dr. Barlow's report is heightened by an account of his personal symptoms following experimental auto-infection and his subsequent cure by means of the most up-to-date anthelmintic remedy, carbon tetrachloride.

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## THE HEALTH VISITOR AND HER EDUCATION.

HEALTH visiting is, comparatively speaking, a new profession. It was in 1908 that the London County Council first empowered sanitary authorities in London to appoint women to be known as health visitors, whose duties were to include: (1) giving advice on the proper nurture and management of young children; (2) the promotion of cleanliness as the basis of health; (3) such other analogous duties as may be assigned to them. In the absence of any official pronouncement on the subject, it is hardly to be wondered at that widely divergent views have been held as to the most desirable training for the woman who is to fill this somewhat nebulous rôle, and even now no complete agreement has been arrived at. Some feel strongly that a three years' general nursing training should be insisted upon as the foundation in every case. This is in accordance with the American practice, where the public health nurse is, as a matter of course, a graduate of a hospital training school; and in this country the College of Nursing has recently arranged a course of training in preparation for the health visitor's certificate, for which none but the fully-trained nurse is eligible. On the other hand, there is a body of people, including medical men and women of such experience as Prof. H. R. Kenwood and Dr. Flora Shepherd, who have expressed the opinion that three years spent entirely in association with illness is actually detrimental to a health visitor, whose efforts, in so far as they are medical at all, deal with prevention and not with cure. Such essentials as a knowledge of anatomy, physiology, and asepsis can, they say, be acquired more quickly than by spending three years in hospital. Members of this school of thought insist on the social character of public health work, and consider that routine nursing in an institution does little to prepare the health visitor to help the mother in grappling with the problems of a working-class home.

While different views as to the best training have thus been held amongst those well qualified to judge, it has for a long time been recognised, especially by health visitors themselves, that a uniform standard should be accepted over the country as a whole, so that a certificate considered essential by one local authority should not be regarded as a disadvantage in another district. The regulations issued by the Ministry of Health, which came into force in April, 1925, represent a serious attempt to face the situation and to reduce to order the chaos of former permissible qualifications. The health visitor, under these regulations, gains a certificate after passing an examination conducted by the Royal Sanitary Institute—the central examining body appointed by the Ministry to hold examinations in various convenient centres—and she must either (*a*) be a trained nurse who has obtained the certificate of the Central Midwives Board, and has completed an approved course of training in public health work for at least six months; or (*b*) have undergone a course of training of two years' duration, already recognised under the Board of Education (Health Visitors' Training) Regulations, 1919, together with six months' training in hospital, and has obtained the certificate of the Central Midwives Board. In no case is a certificate now granted without the passing of this examination, which was held for the first time last October. Existing health visitors are safeguarded in that they may be reappointed without further qualification, and those with five years' service may sit for the examination without attending any special course of instruction; but from April 1st, 1928, no woman may be appointed for the first time as whole-time officer of a local authority with health visiting duties unless she has obtained the certificate. Those who have many years of service to their credit, as well as the best qualifications hitherto available, will evidently be at a disadvantage in applying for new appointments, as compared with the youngest health visitor who holds the Ministry's certificate, and it is doubtless to rectify this that the Ministry has recommended local authorities to give every opportunity to health visitors to obtain the certificate, and offers grants in aid to enable them to do so at a reasonable fee.

## "SHIP FEVERS."

FEVERS have always been the most prevalent and important of the diseases of seafaring men, but under this convenient term have been included illnesses of many different sorts. The advance of medicine in the last 30 years, particularly in the differentiation and recognition of diseases, has shown how many illnesses aboard ship are due to tropical disease, and especially to malaria. In a recent article[1] Prof. K. Sannemann illustrates this statement from his experience at the port of Hamburg. Twenty years ago Nocht estimated that malaria attacked 60 per cent. of the crews of ships trading to malarial regions. Prof. Sannemann himself found that, between 1908 and 1914, one-seventh of the medical cases coming to his notice on ships arriving at Hamburg were malarial, two-thirds of them from West Africa, one-eighth from the Caribbean Sea. Of the malarial cases 86 died and 2125 were received into hospital. Cases are not so frequent now as they were before the war, for quinine prophylaxis has become familiar both to owners and to sailors. Ships' doctors report improving results for, though prevention is not absolute, cases are fewer and slighter, and time lost through illness is reduced. That time-wasting tropical disease, dengue, is also met with on shipboard, and Prof. Sannemann finds that there are medical officers acquainted only with European diseases who do not treat amœbic dysentery with emetine and yatren. Doctors should, he thinks, not be put in charge of ships sailing to the tropics unless they have had a course in a school of tropical medicine. At present they have to report themselves to the port medical officer, who has only time to touch on the more important matters. Moreover, a doctor on board ship is sadly handicapped without a microscope.

## THE AMERICAN HEART JOURNAL.[2]

THE economic importance of rheumatic infection in childhood is being impressed on the Metropolitan Asylums Board by its medical officers, and we print substantially in full on p. 151 Dr. Gordon Pugh's report, in accepting which last Saturday the Board also accepted responsibility for the preventive treatment of cardiac complications. The care of heart disease when it has once occurred, especially as a factor of industrial importance, has received more general consideration in America than in this country, as a visit to one of the pioneer clinics in New York City, such as that of Dr. Wyckoff, at the Belle Vue Hospital, or that of Dr. St. Laurence, at St. Luke's Hospital, will show. Of these the former is an evening clinic, dealing solely with adults whose disability is not yet sufficient to prevent them carrying on their employment. The cost to the hospital is small, for not only do the medical officers give their services in a purely honorary capacity, but almost the entire clerical and administrative staff consists of voluntary workers, who, after a hard day's work in the city, devote their evening to the work of the clinic. Their labour is rewarded, for there are few departments of medicine in which results are so soon to be seen; the patients fully realise that, but for the advice and treatment which they receive week by week at the clinic, many of them would no longer be able to support themselves and their families. At the children's clinic at St. Luke's Hospital the picture is no less pleasing. Here many cases of incipient heart disease are arrested in the early stages, so that children, who would otherwise have been crippled for life, grow up to be useful members of society. The clinic also includes a group of "potential cardiac cases"—namely, children who have suffered from rheumatic fever or chorea, but have not hitherto manifested any signs of heart disease. Careful supervision may prevent some of these from developing cardiac lesions. In the diagnosis of heart disease considerable progress has been made during the past quarter of a century, as the result of the advance in our knowledge of the cardiac mechanism; but in its treatment, apart from the more rational use of drugs, there is little to show. To speak of "cure" in connexion with organic heart disease is hardly permissible, but concerning its prevention and relief there is still much to learn; and in these two branches of therapeutics the statistics compiled by the American Heart Association will have permanent value.

This Association has undertaken the task of organising the study of heart disease on a large scale, and the first number of its official organ, the *American Heart Journal*, appeared in October last, with the primary object of rendering more easily accessible papers on various aspects of heart disease, previously scattered in less specialised journals. Although primarily clinical in character, and designed to appeal to the general practitioner as well as to the heart specialist, this journal will contain original articles dealing with the more purely scientific and public health aspects of the subject, critical reviews, and abstracts of important articles in the current literature. The first number opens with an article by Dr. Aldred Scott Warthin, giving the clinical histories and pathological findings in eight cases of sudden death due to exacerbation of latent syphilitic myocarditis. The extremely abrupt onset of severe symptoms, in apparently healthy men, was a very striking feature, for in only one of these cases did the fatal illness last for more than a few days. The myocardial lesions were found to be crowded with spirochætes, and the cell infiltrations were predominantly polymorphonuclear, resembling those of the rapidly developing lesions seen in experimental animal syphilis, as opposed to the round-celled infiltration of the more chronic process. Another original communication dealing with a rare and interesting condition is that by Drs. Samuel Bradbury and Cary Eggleston on Postural Hypotension. Three cases are described in which assumption of the erect posture was associated with a remarkable and persistent fall in both systolic and diastolic pressures. All these patients were liable to syncopal attacks, exhibited a total inability to perspire, and had a slow pulse-rate. The reaction of the patients to certain drugs led the writers to suggest that the condition is probably due to paralysis of the sympathetic vaso-constrictor nerve-endings. Dr. E. Libman discusses the prognosis in a series of 800 cases of subacute bacterial endocarditis. Drs. Frederick A. Willius and Samuel F. Haines give an analysis of the cardiac findings in 162 cases of myxœdema. Drs. Samuel A. Levine and Francis C. Newton, in a paper dealing with the operative treatment of angina pectoris, give the clinical and laboratory findings in eight cases in which sympathectomy was performed, and discuss the selection of cases suitable for this operation. Drs. Paul D. White and Merrill M. Myers give a comprehensive classification of cardiac diagnosis. Drs. James G. Carr and John D. McLean have articles dealing with the public health aspect of heart disease. Drs. William J. Kerr and Stacy R. Mettier review the literature dealing with the blood-supply of the heart valves. They describe their own observations on the pig, and discuss the embolic theory of endocarditis in the light of these findings. Drs. George R. Herrmann and Frank N. Wilson describe a new electrode with a very low external resistance, suitable both for clinical and for experimental electrocardiography. We feel sure this new journal will serve a useful purpose in bringing recent advances in cardiology before the notice of a wider public, and especially in directing attention to the all-important subject of prevention.

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[1] Arch. für Schiffs- u. Tropen-Hygiene, 1925, xxix., 486.

[2] The American Heart Journal. Edited by Lewis A. Conner, M.D., and Hugh McCulloch, M.D., under the editorial direction of the American Heart Association. London: Henry Kimpton. 37*s.* 6*d.* per annum post free, single issues 7*s.* 6*d.*

## THE LABORATORY DIAGNOSIS OF SMALL-POX.

WITH the increasing occurrence in several northern and midland counties of the mild form of small-pox it is obvious that any serological or similar method of identifying this disease would be of the greatest service. During the years 1924 and 1925 there were a certain number of cases of suspected small-pox in Belgium, and Dr. L. van Boeckel carried out an important series of investigations on 12 cases where the diagnosis was doubtful. The results of this have been recently published,[1] and if the experimental work can be confirmed an important addition to the methods of diagnosing small-pox will be available. Clinically, all 12 cases ran the course of mild small-pox, or, as Dr. Boeckel prefers to call it, alastrim, following the modern accepted views on the symptoms and signs of this disease. The experimental work consisted of attempting to vaccinate the patients, examination of their blood, Paul's reaction, examination for the corpuscles of Guarnieri, and complement-fixation tests. Vaccination and blood counts were carried out in the ordinary way. Paul's reaction consists in removing some of the liquid contents of a vesicle, or using a suspension of dried and powdered crusts, which is suitably diluted and placed on the scarified surface of a rabbit's cornea, the other eye being used as a control. At the end of 40 to 48 hours small elevations appear on the surface of the inoculated eye if the reaction is positive, as it is held to be constantly if material from a case of small-pox or vaccinia be used. In alastrim the reaction is inconstant and feeble, while it is always negative in chicken-pox. On microscopical examination of the rabbit's cornea thus treated certain round or oval collections of bodies are to be found, known as the corpuscles of Guarnieri. These are said to be pathognomonic of small-pox, although somewhat divergent results indicate that they may be present if alastrim vesicle lymph has been used. The complement-deviation experiments appear to be of great interest. Both the vesicles and pustules of the small-pox eruption contain a specific antigen and the serum of a small-pox patient contains specific antibodies. These bodies are similar to those for vaccinia, but quite distinct from those of chicken-pox. The specific antibodies appear in the blood during the stage of vesiculation and disappear during desquamation. In the case of chicken-pox specific antigens and antibodies are also found. The difficulties with regard to obtaining fresh small-pox lymph to act as antigen in carrying out complement-fixation experiments have been got over by using dried vaccine lymph which has been found to answer the purpose well and can be stored and emulsified before use. In the case of chicken-pox the antigen used consists of dried and powdered crusts which are emulsified in saline before use. After various experiments the necessary amounts of complement, antigen, and serum have been worked out and the method applied with suitable controls to the 12 cases already mentioned. Dr. Boeckel emphasises that no one laboratory test should be relied upon for the diagnosis of small-pox, but that all five enumerated above should be employed in each case. He claims that if this be done it is almost always possible to differentiate between chicken-pox and small-pox in a doubtful case. Thus, in one case of a miner, aged 25, who had been successfully vaccinated and revaccinated, a specific fever occurred which corresponded to the classical descriptions of alastrim. Vaccination on the eighth day of the disease was negative, there was a leucopenia with a relative leucocytosis (as occurs in chicken-pox), the Paul reaction was negative, and no corpuscles of Guarnieri were found. The complement-fixation test was negative with small-pox antigen and positive with chicken-pox antigen. The diagnosis of chicken-pox was therefore made with some certainty. It is unfortunate that these researches have not enabled Dr. Boeckel to differentiate alastrim in any satisfactory manner as a specific disease. He points out as an added difficulty from the clinical point of view that chicken-pox appears to take the form of alastrim quite as often as does small-pox: this is, we believe, not the experience of clinical observers in this country.

## THE OTAGO MEDICAL SCHOOL.

JUDGING from a volume[1] which has lately reached us, the methods of instruction at the Medical School of the University of Otago, Dunedin, N.Z., are progressive and must be stimulating. It consists of 13 papers reprinted from the *New Zealand Medical Journal*, the *Journal of Pathology and Bacteriology*, and THE LANCET, and is wholly the work of hospital residents, assistants and demonstrators, and senior medical students. A systematic attempt is made to encourage independent work, and though, of course, a great deal that is produced is not more permanent than academic exercises should be, the present issue of the Proceedings shows that a certain amount is done which is obviously useful to others as well as to the authors. There are papers on some anatomical anomalies, the serum treatment of pneumonia, the treatment of fractures of the forearm, virulent staphylococcal infections, complement fixation in the diagnosis of gonorrhœa, and other interesting subjects. So much of medicine, surgery, and pathology is the same all the world over that the topics are of general interest everywhere. The only article of nominally local character deals with diabetes in New Zealand, and shows that its prevalence is rather greater than in England and rather less than in the United States, and has increased in recent years as it has elsewhere. The plan of stimulating senior students and young undergraduates to plunge into original inquiries at the earliest possible time is not without its dangers. It may and does lead to the publication of many papers which are records of time spent rather than contributions to the advancement of knowledge, and sufficient care is not always taken that the inquirers are adequately grounded in a wide elementary knowledge of their subject. But as a piece of academic training, imposed on an adequate preliminary preparation, it is unrivalled, and with due restraint in publication should be more widely adopted than is done at present.

WE regret to announce the death, at the early age of 41, of Dr. George Herbert Hunt, physician to Guy's Hospital.

THE sudden death took place at Bradford on Jan. 12th of Mr. Basil Hall, honorary consulting surgeon to the Bradford Royal Infirmary and lately President of the British Medical Association.

## INDEX TO "THE LANCET," VOL. II., 1925.

THE Index and Title-page to Vol. II., 1925, which was completed with the issue of Dec. 26th, will shortly be published. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

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[1] Bulletin de l'Office International d'Hygiène Publique, November, 1925, p. 1213.

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[1] Proceedings of the University of Otago Medical School, No. 3, 1925. Edited by Prof. D. W. Carmalt-Jones, Dunedin, N.Z.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLVI.

## THE TREATMENT OF TINNITUS AURIUM.

The treatment of tinnitus is unfortunately often disappointing, and it must be admitted that advance in this direction is in no way commensurate with that along other paths of knowledge of aural disease. The fundamental difficulty lies in lack of knowledge of the pathology of tinnitus, with the result that treatment must be largely empirical and based on clinical observation of the use of various drugs. Since tinnitus is an accompaniment of most forms of ear disease the subject is a large one; indeed, the author of one large text-book states that "treatment of subjective noises is as broad as the subject of ear and brain diseases." This statement is no doubt true; nevertheless it is perhaps helpful to condense what is known in the treatment of a symptom which is always annoying and frequently distressing.

Though many cases must be treated empirically there remains a number that may be relieved by treating an objective cause. Investigation of a case of tinnitus must be systematic and thorough in order to eliminate this possible cause before falling back on well-tried drugs.

Cases may in the first place be divided into two groups: (*a*) Those without deafness, very small compared with (*b*) those in which tinnitus accompanies deafness. In passing it must be noted that patients' statements as to deafness are unreliable, and after examination many who at first sight are regarded as group (*a*) pass to swell group (*b*).

### *Cases of Tinnitus without Deafness.*

The question of general health must be gone into and treated; constipation, renal conditions, vascular system, including heart and blood pressure, anæmia, functional nervous disease, neurasthenia, exhaustion, physical and mental, also excess of tobacco and alcohol. Certain "referred" causes must receive attention. Investigation must include the *teeth*; unerupted molars may cause tinnitus, and an X ray examination of the jaws and subsequent extraction may cure the noises. Even carious teeth may be a cause of tinnitus. The *accessory nasal sinuses* must come under suspicion and must be investigated for the presence of suppuration. The *nasopharynx*, too, may show some abnormality, though, as a rule, in cases of nasopharyngeal disease (adenoids, growth), deafness usually accompanies tinnitus. The *tonsils* must not be overlooked, since undoubtedly some unexplained cases of tinnitus are due to toxic absorption from tonsils and removal has been followed by cessation of tinnitus. In this group are placed those cases in which the tinnitus is not a true tinnitus but an hallucination; the patient hears voices and sentences, a condition almost always indicating serious mental disease.

### *Tinnitus with Deafness.*

Though there is no real evidence as to the cause of tinnitus it appears to be true that any pressure on the foot-piece of the stapes makes for tinnitus (this can be shown by the fact that pressure on the normal membrane with a probe produces tinnitus), so that relief of any existing pressure should relieve the patient. The cases in this group may be subdivided into (1) cases with objective signs of disease, and (2) those without objective signs.

### *Cases with Objective Signs.*

In these patients examination must be made of (*a*) the external auditory meatus, (*b*) the tympanic membrane, (*c*) the Eustachian tube.

(*a*) The *external auditory meatus* must be examined for wax, foreign bodies, polypi, osteomata; treatment of these conditions if found is obvious.

(*b*) The *tympanic membrane* must be examined for signs of middle-ear affections. The membrane may show signs of acute inflammation, redness or bulging, or recent perforation; in these conditions the tinnitus is usually described as pulsating or blowing; subsidence of the acute condition usually leads to cessation of the tinnitus. There may be an exudative middle-ear catarrh, as shown by slight changes in the colour of the membrane and by a hair-like line on the membrane. This line is concave upwards and is made by the surface of the fluid in the tympanum and moves with movement of the head. With this condition the tinnitus complained of is of water moving or, in more chronic cases, of creaking, or of "two pieces of leather being rubbed on one another."

*Treatment* consists in inflation of the Eustachian tube and instillation of drops of glyc.-acid-carbol.; if unsuccessful the membrane is incised under strict asepsis or antisepsis and the fluid sucked out with Siegle's speculum or blown out by means of the Eustachian catheter; removal of the fluid immediately removes the noise.

The membrane may show old-standing perforations or scars of perforations or atrophic patches, but treatment of these conditions locally is usually useless as far as tinnitus goes, since they indicate chronic infections and adhesions.

It has been long recognised that the rarefaction of the air in the external auditory meatus often diminishes the noise, and when such is the case vibratory massage of the drum is well worth carrying out and should be practised for about five minutes on three or four occasions. Retraction of the membrane is very often associated with tinnitus in its severest form.

(*c*) The *Eustachian tube* is vitally important; any catarrhal condition of the upper respiratory tract may cause catarrh of the Eustachian tube; this condition results in retraction of the membrane, and it is impossible to dissociate conditions of the membrane and abnormalities of the tube.

*Treatment.*—Inflation of the tube by means of the catheter in recent cases may lead to immediate cessation of the noises; this proceeding may want repeating on three or four occasions. Inflation of air alone is not always successful, but good results may be obtained by inflation of warm air, vapour of chloroform, or ether; or again by inflation of a few drops of a 5 per cent. solution of methyl salicylate in parolein through the catheter. In obstruction of the tube the passage of a Eustachian bougie gives excellent results. In recent cases these local measures meet with a considerable degree of success; but when the middle-ear catarrh is chronic local measures often fail and from a treatment point of view the cases must be placed in the next class to be considered.

### *Cases without Objective Signs.*

Tinnitus with deafness includes a large number of cases in which there is no objective lesion amenable to local treatment, in which the Eustachian tube is clear, the membrane normal and no sign of pharyngeal or nasopharyngeal infection; broadly speaking, the cases are those of internal ear deafness and otosclerosis. The term internal ear deafness is given to a very large group of cases with very varying pathologies. From the point of view of treatment cases of chronic middle-ear catarrh must be included.

*Treatment.*—Whatever the cause of the deafness, and it is often quite unknown, treatment of the tinnitus runs on similar lines; drugs and general advice with encouragement. The best drug is no doubt dilute hydro-bromic acid, and it should be given in full doses of ʒi., three times a day in water; it may be combined with small doses of potass. iodid.; small doses of quinine (gr. i., t.d.s.) help other cases. The condition of the blood pressure is of some help; in cases of high blood pressure doses of trinitrin often give good results. On the other hand, with low blood pressure ernutin should be given and digitalis may well be combined with acid. hydrobrom. dil. Thyroid extract gives encouraging results, especially in cases about the menopause. Pilocarpine nitrate, gr. 1/12, twice a day in a mixture, is sometimes of value. Luminal, gr. ½, three times a day, may be given and the doses carefully increased if need be.

The general advice deals with the patient's health and habits. He should avoid excess of alcohol and tobacco; indeed, tobacco should be stopped. Some people improve with change of environment, in others life at a high altitude causes cessation of the noises. Regular exercise and treatment of constipation should be insisted on. Many patients have a dread, often kept secret, that the noises are going to affect the brain, and reassurance helps them to support what is a depressing burden, especially when the noises are so severe as to prevent sleep. It has been suggested, and carried out with success, that patients should keep a very loud-ticking clock near their beds, so that their attention may thus be distracted from their head noises. Hypnotics should be given to these severe cases. It is these very obstinate cases, so distressing that the victims threaten suicide, which have led to the suggestion of operation on the cochlea or eighth nerve. Unfortunately the few operations that have been carried out have not justified themselves, since the tinnitus has continued in patients who survived the operation.

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# Special Articles.

## RHEUMATIC INFECTION IN CHILDHOOD:

### FACILITIES FOR PROLONGED TREATMENT.

A REPORT on rheumatism in childhood was submitted to the Metropolitan Asylums Board on Jan. 9th by Dr. W. T. Gordon Pugh, chief medical officer of the Board's children's and surgical tuberculosis services. Dr. Pugh reproduces in his report the considered opinions of various authorities and has collected information on the facilities available for treatment in the London area. The subject is of such interest and importance that we reproduce the substance of Dr. Pugh's report.

### *Extent of the Evil.*

In 1923, says Dr. Pugh, one-eighth of the deaths in England and Wales were registered as being due to heart disease, and it has been estimated that one-half of all cases of heart disease are of the rheumatic type. In a prolonged investigation at Bristol Dr. Carey Coombs found that in two-thirds of his cases the disease commenced between the ages of 5 and 15, and if these data are correct it follows that rheumatism in childhood is eventually responsible for one twenty-fourth of all deaths. In the past insufficient attention has undoubtedly been paid by health authorities to the prevention and treatment of rheumatic fever in children. Cardiac cripples have not received from them the sympathy and care that tuberculous and paralysed cripples have received, possibly because they are less conspicuously in evidence. There are signs, however, that public interest is awakening.

### *Manifestations of Rheumatism in Children.*

Rheumatic fever, as Dr. Pugh remarks, is exceedingly rare in infancy and uncommon under the age of 5. After 5 it is, of course, not only one of the most frequent diseases of childhood but one of the most serious, differing from the same disease in adults in that joint affection is a much less prominent symptom, which may, indeed, be altogether absent. Taking its commoner forms, there are two principal groups: those beginning with sore-throat, arthritis, and carditis, and those beginning with chorea, often associated with carditis, but sometimes not. In 1108 cases observed by Dr F. J. Poynton[1] carditis occurred in 60 per cent., arthritis in 56 per cent., chorea in 55 per cent., and sore-throat in 30 per cent.

### *Incidence in London School-children.*

The school medical officer of the London County Council reports that a census of children absent for over three months is taken once a year, and that in November, 1924, it was found that there were 2088 children who had been absent for this period, of whom 972 were absent on account of rheumatism of the heart and chorea During 1924 there were admitted to the physically defective schools 271 children with acquired heart disease. Among about 10,000 children examined at ordinary routine inspections by Dr. Nairn Dobbie (i e , excluding the worst cases who either do not attend school or are early admitted to a physically defective school), definite evidence of acquired carditis was found in 0·1 per cent. of children under 5 years, in 0·25 per cent. at 7 years, and in 0·7 per cent. at 12 years. In 90 per cent of all these cases of structural alteration of the heart there was a history of rheumatic fever, definite chorea, recurrent pains and repeated tonsillitis, either singly or combined In the remaining 10 per cent. the only illnesses recorded were scarlet fever, diphtheria, influenza, measles, or whooping-cough.

### *Indications in Management.*

Much depends, continues Dr. Pugh, upon the treatment which the child receives in his first attack. From the administrative aspect there are two indications in treatment :—

(1) *The healing of the heart condition,* so far as it can be healed, by rest and regulated exercise.—The horizontal position reduces blood pressure and cardiac action, and lessens the danger of cardiac complications; rest in bed at least until the pulse-rate is normal is essential. How nearly this rest should be absolute and how long it should be continued are matters for investigation. Dr. R. Miller advocates prolonged quiet rather than strict rest; and Dr. Poynton says that convalescence from rheumatic carditis should be a history of graded exertion and not aimless rest. Others, with facilities for providing a more prolonged recumbency than voluntary hospitals can afford, favour an extension of the period of complete rest. On the general subject of management a letter from Sir Archibald Garrod may be quoted:

> "In some cases of children of medical men, for whom one can ensure the necessary care and rest, I have seen results which have enabled me to realise how much might be accomplished could the necessary conditions be ensured. I can express my confident belief that an organisation which rendered it possible to give two or three months' rest in bed to all children with rheumatic fever would reduce very materially the severity and frequency of what is commonly spoken of as 'heart disease' amongst the adults of the community"

(2) *The building up of the resistance of the tissues to help them to overcome the tendency to further attacks.*—This is more debatable, for the cause of relapses is not definitely understood. Dr. Miller says :—

> "Whence come these later attacks? Are they from the alimentary tract, the mouth, or the bowel, or do they originate from foci left encapsulated in the tissues of the body? In some cases it would seem that they are not really fresh attacks, but recrudescences of an infection which has never truly been quiescent. I confess that this whole subject, important though it is, is full of mystery to me."

Whether the prevention of relapses depends on freeing the patient from the infection or on building up his resistance, treatment for a considerable period in hygienic country surroundings seems to be indicated. Dr. Poynton, advising prolonged care in the country for sufferers from rheumatic heart disease after the acute phase is over, says:

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[1] Brit. Med Jour., 1923, i., 919.

> "Will these measures prevent relapses in the future? The answer seems to me plain; until we have a specific remedy the most we can expect is that by giving children time to consolidate the recovery of their hearts, and by assisting nature to build up the resistance of their body tissues, we certainly help them to repel future attacks. After puberty the tendency to cardiac rheumatism diminishes, and thus we have the right to believe, until it is proved to the contrary, that a number of these cases will escape further attacks. Fresh air, rest, and education will not themselves arrest rheumatism, but they are sure steps in its prevention."

### *Existing Accommodation in London.*

(1) *Children's Hospitals.*—There are six London children's hospitals, and Dr. Pugh has summarised the statistics for 1924 of the five which publish annual medical reports. The total accommodation was 706 beds; these received 10,096 in-patients, of whom 377 (or 3·7 per cent.) suffered from rheumatism or its effects (rheumatism, 99; morbus cordis, 117; chorea 161). The pressure on the accommodation of voluntary hospitals calls for a somewhat rapid passage of patients and the average stay, omitting cases of adenoids, varied from 20 to 30 days. The stay of rheumatic cases is generally longer; at the Hospital for Sick Children, Great Ormond-street, it averaged 60 days in 1919–20. Some children's hospitals have their own convalescent homes and are able to transfer a small number of their rheumatic cases to them; a few cases are transferred to special country homes of limited accommodation; sometimes it is necessary to send these patients home to await vacancies. Physicians have long lamented the necessity for the premature return of rheumatic cases to their homes, and Dr. Miller, remarking that pressure on hospital beds made prolonged treatment impossible, continues:

> "The ordinary convalescent home in the country or at the seaside is too lively a place for the chronic heart case. I think most physicians have quite given up sending such cases to convalescent homes even where they will be accepted.

(2) *General Hospitals.*—Many cases are treated at general hospitals, but as children are not separated from adults in the statistics, it is not possible to ascertain the number. The difficulty of providing treatment of sufficient length is even greater than in children's hospitals. A letter from the almoner of Guy's Hospital may be quoted:

> "I think it may interest you to know that 52 children have to my knowledge been sent to infirmaries during the past three months from the out-patients' department here, suffering from rheumatism or chorea in an acute stage; and 16 have been referred to the Invalid Children's Aid Association for institutional treatment. Even these figures do not represent the total number of acute cases, and the number of children with subacute rheumatism attending as out-patients at intervals would be difficult to ascertain. It must, however, be very large and, on the principle that prevention is better than cure, it would appear that these early cases should be given as much consideration as the acute cases. The children who are seriously ill are usually referred to me by the physicians with a request to provide immediate nursing treatment under skilled medical supervision, followed by prolonged convalescent treatment under supervision to ensure the best results. Few of these children can be admitted to such a hospital as this owing to the pressure on beds here, which precludes the possibility of blocking many with these very prolonged cases. Immediate admission to the infirmary for treatment during the acute stage, with a view to transfer when fit to a M.A.B. hospital, such as Queen Mary's or The Downs, has seemed to us to be the best solution of the problem at present; but, unfortunately, experience shows that the children do not always go to a M.A.B. institution, and we have record of cases in which children have returned to this hospital, for perhaps the third time within a few months, with symptoms of acute rheumatism, having been nursed for short periods in the infirmary and then discharged to their homes. The few that are admitted to the wards here also present a problem as, being the more severe cases, transfer to a suitable institution is especially desirable as soon as the acute symptoms have subsided. Unfortunately the voluntary societies have neither the accommodation nor the funds for many such long and difficult cases."

(3) *Guardians' Hospitals.*—These take a much greater part in the treatment of acute cases than is generally appreciated. Statistics are not published, but in Southwark Hospital in 1924 55 cases of acute rheumatism and chorea in childhood were treated, and 72 days was the average length of their stay. All of them were admitted direct from their homes. Thirty-four of these patients were transferred from Southwark to M.A.B. country hospitals for further treatment. The total number of rheumatic children received at the Board's country hospitals from the guardians' hospitals and discharged in 1924 was 228 (carditis, 120; chorea, 90; debility after rheumatism, 18); the average stay in the country hospital was 136 days for cases of carditis and 90 days for cases of chorea. Children treated at the guardians' hospitals thus have the advantage that their stay can be longer and they have the opportunity of transfer to one of the Board's country hospitals or seaside homes.

### *Treatment at M.A.B. Hospitals.*

A memorandum from the Invalid Children's Aid Association submitted to the London County Council in November points out two practical difficulties in obtaining treatment in the Board's country hospitals—viz., the natural objection of self-supporting parents to application to the Poor-law and the almost insuperable difficulties in the path of a direct transfer from the wards of a voluntary hospital to these institutions. It suggests that the Council should take beds in voluntary homes for heart cases, and recommends that direct admission to the Board's hospitals should be arranged to avoid the intermediate agency of the Boards of Guardians. On the latter subject Dr. Pugh has interviewed officials of the Ministry of Health, and gathers that since acute rheumatism may be regarded as a "fever," it is unlikely that any objection will be raised to such patients being admitted to the Board's hospitals in the same way as other fever cases.

*The Ideal Facilities.*—Last year, we may recall, in a report on rheumatic diseases among insured persons, Sir George Newman said:

> "The concentration of acute rheumatic cases in a special hospital with cardiological and pathological departments, preferably situated in a country district, would probably be followed by a great advance in our knowledge of the disease and of the prevention of valvular disease of the heart."

He remarked that medical opinion had advised what almost amounted to bed sanatorium treatment for convalescent patients in special homes of recovery. In a report to the Board of Education in September, 1925, he says:

> "There can be no doubt that children suffering from rheumatic infection are better for early hospital treatment, and there is need for more institutional accommodation for such children. Preferably they should not be mixed with other invalid children, but dealt with in separate open-air hospitals or residential recovery schools, where 'team' and co-operative research can be undertaken into differential diagnosis and causation, and where suitable treatment, training of the body, education of the mind, and prolonged convalescence are available. The admission to such institutions should be upon a selection basis, and much care, skill, and foresight are necessary to their proper management. Something much more than the ordinary convalescent home is necessary, and obviously the means of treatment will vary for cardiac, choreic, or arthritic cases."

### *Dr. Gordon Pugh's Report Adopted.*

Having considered Dr. Gordon Pugh's report, the Metropolitan Asylums Board adopted his suggestion that accommodation for rheumatic children should be provided at Queen Mary's Hospital for Children, Carshalton, Surrey. Application for sanction to this proposal will be made to the Ministry of Health.

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Dr. George Mitchell Winter, of Torquay, who recently resigned his seat on the Torquay Town Council after having been a member for a quarter of a century and deputy-mayor for several years, is to be presented with the freedom of the borough.

# MEDICINE AND THE LAW.

### *Cancer in Tar-Workers.*

A RECENT inquest in Manchester indicated once more the danger of cancer where workmen are employed in contact with tarry substances. The deceased man had worked for 24 years at the Bradford-road gas-works of the Manchester Corporation. According to the evidence reported in the *Manchester Evening Chronicle*, he developed a growth on the knee in 1918, underwent operation at Manchester Royal Infirmary, and resumed work at the end of that year. Another growth formed in 1923, and after a second operation he again took up his work, but finally gave it up at the end of 1924. The coroner, Mr. C. W. W. Surridge, said there was no doubt that death was occasioned by the cancerous growth due to the nature of his work, and a verdict to that effect was returned. The manager of the gas-works, who stated that this was the first case of the kind to come to his notice, though a second case has since been reported, was questioned by the coroner as to the possible use of protective clothing. He replied that there had been difficulty in finding suitable clothing and that rubber had not been found satisfactory. Dr. W. Faith, who also gave evidence, advised that workmen thus employed should be periodically examined in order that early operation might be performed where a growth was discovered. The coroner recommended that some such system of examination should be adopted.

It will be recalled that in November, 1919, a Special Order of the Home Office, made under Section 73 of the Factory and Workshop Act, applied that section (notification of disease) to epitheliomatous ulceration due to tar, pitch, bitumen, mineral oil, or paraffin, or any compound or residue of these substances, occurring in a factory or workshop. Regulations enjoining the use of protective clothing, gloves, &c., in trades specially classed as dangerous have not infrequently been made under Section 79 of the Act. In particular, the Chemical Works Regulations of 1922 contain provisions of this nature, but they are expressly excluded from application to the "manufacture and necessary purification of coal gas, water gas and producer gas for lighting, heating, and power purposes." Pending fresh legislation the special need appears to be, as the coroner observed, that workers should voluntarily submit themselves for examination at the first suspicion of any trouble. It should not be impossible to bring to the knowledge of all workmen concerned the protection which early treatment provides and the danger of delay.

### *Guardianship of Infants Act: a Magistrate's Protest.*

The Guardianship of Infants Act of 1925 may not be a matter of direct professional concern to medical practitioners. But it seems to be serving a useful purpose in reminding persons who are interested in social reforms of the fact that most new measures of social reform throw fresh duties upon either the county court judge or the justice of the peace, and that, in the interests of successful administration, Parliament had better indicate the lines on which those duties are to be discharged. Until last year the Chancery Division, acting as the deputy of H.M. the King, who is the father of his country, had a virtual monopoly of the jurisdiction over the guardianship of infants. The Act of 1925 entrusted a large part of this jurisdiction to magistrates. Thus it happened that Mr. Bingley, the stipendiary sitting at Marylebone police-court, has recently had to adjudicate upon a summons taken out by a husband against his wife for the return to him of their child, aged 4. Now the Act possesses the somewhat unusual feature of a preamble, and the preamble recites the modern acceptance of the principle of sex equality. The Act proceeds to declare that the Courts in deciding upon the custody or upbringing of an infant or the administration of its property shall regard the welfare of the infant as the first and paramount consideration, and shall not take into consideration whether from any other point of view the claim of the father or any right possessed by him at common law is superior to that of the mother, or the claim of the mother is superior to that of the father. The Act also gives the mother equal rights with the father of making applications to the Court. Mr. Bingley is reported by the *Times* to have observed that those who drafted the Act did not seem to have understood the basis of our laws. Apparently, he said, the framers of the Act assumed that a father had powers under the Act, but they did not give him any. It was an instance of the fresh difficulties which the legislature had put upon magistrates in calling upon them to decide matters formerly dealt with by the Chancery Division of the High Court. The Act was extremely vague and did not say that fathers had any right to their children. It was amazing that magistrates should be called upon to construe this Act in these circumstances. He assumed that, as the mother was stated to have equal rights with the father, the father also had certain rights, but the onus put upon magistrates by the Act was terrible.

It may be hoped that other magistrates will not be so easily appalled. The present position is not really so incomprehensible. The common law always favoured the father. The father of a legitimate child was something more than its guardian, for he could determine its religion, which a guardian could not. He had a right to the custody of the child and to the control of its education. Even if he made an agreement before or after marriage by which he purported to surrender this right, the Courts would hold such agreements to be void as against public policy, though in 1873 the mother's right to custody of a child under a separation deed was recognised. In 1839 the Court of Chancery was given power to take a child away from the father and give it to the custody of the mother until it was 7 years of age. In 1873 the age-limit was raised to 16. In administering these provisions the Chancery Court had special regard to the interests of the child and to the conduct of the father. In 1895 courts of summary jurisdiction were authorised to give a married woman the legal custody of her children under 16 as against the father, and, of course, orders as to the custody of the children have long been a well-known feature of matrimonial causes. Thus, in spite of its acknowledgment of sex equality, the new Act is not so very revolutionary after all. Indeed, the principle that the interests of the children shall be the paramount consideration with the Court has been an express doctrine in Chancery for nearly 50 years. No doubt it is true that the common law rights of the father still counted for something. For instance, the Chancery Courts would hold that a father living in constant debauchery and open adultery was unfit to have the control of his children; on the other hand, occasional incontinence or even living in adultery, provided that the children were not brought in contact with the adulterers, was held no ground for interference with him. It was this inequality of the sexes, this surviving modicum of the father's common law rights, which the 1925 Act set itself—a little rhetorically—to remove. Henceforward the magistrate is not to favour either father or mother as such, but merely to consider whether the one will do the child more good than the other. As for the common law rights of the father, whatever they may have been, the Act says they may now be disregarded. As for the legal learning of the Court of Chancery, it is not book knowledge that our magistrates will require in administering the delicate and difficult duties now imposed upon them.

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NORTHERN INFIRMARY, INVERNESS.—The Mackintosh of Mackintosh has issued an appeal for £100,000 for the reconstruction, extension, and endowment of the Northern Infirmary, Inverness, which is the general hospital for an area comprising the counties of Inverness, Nairn and Moray, Caithness, Sutherland, and Ross and Cromarty. The infirmary was built a century and a quarter ago and is now, in spite of additions and improvements, inadequate and entirely out of date.

## VIENNA.

(FROM OUR OWN CORRESPONDENT.)

### *Dichloren as an Anæsthetic.*

Prof. Paul Albrecht discussed recently before the Vienna College of Practitioners the advantages of *dichloren* (dichlorethylene) as a general anæsthetic. He has tried it in more than 500 cases during the last two years. He employs two mixtures; the first contains 1 part dichloren to 2 parts pure ether, and the second, 1 part dichloren to 3 parts ether. Administration is preceded by a hypodermic injection of 0·02 g. (nearly ⅓ gr.) of morphia and 1 mg. (1/70 gr.) of atropine half an hour before operation. Similar preparation, with appropriately smaller doses, is required in children. The new anæsthetic produces no fall in blood pressure and no damage to the tissues. In half the cases there is no excitement, and the patients are easily brought under anæsthesia. Sometimes twitching is noticed, but the only unpleasant complication observed has been spasm of the glottis or diaphragm, which occurred in 5 per cent. of the cases. Albrecht advises the open (drop) method, starting with a few drops and then increasing the rate of flow. At the end of 5–10 minutes there is always relaxation of the muscles sufficient for the most extensive abdominal operation. The use of dichloren markedly diminishes the amount of ether required, so that no more than about 30 g. of dichloren and 90 g. of ether are used per hour. Eighty-eight per cent. of all his operations with the new method were absolutely free from any inconvenience. In 5 per cent. the spasms mentioned above occurred—they were removed by increasing the rate of flow of the anæsthetic—and in another 5 per cent. there was cyanosis, or excitement, or lack of relaxation. These troubles were mainly seen in alcoholics, neurasthenics, or excessive smokers. He found that lobelia gives excellent results in cyanosis; a hypodermic of 0·02 g. (⅓ gr.) restores breathing rapidly. In one case, a woman of 72 years, operated on for incarcerated umbilical hernia, death occurred during dichloren anæsthesia; a severe extensive fatty degeneration of the myocardium was found at the post-mortem. Awakening after anæsthesia is rapid and free from any inconvenience in over 70 per cent. of cases. Pulmonary complications after dichloren are seen in 8 per cent. of cases, compared with 10 per cent. after the old ether-chloroform method. Whilst chloroform damages the vasomotor system, the myocardium, and the parenchymatous organs—not to mention its delayed results—dichloren does not produce any of these effects.

### *Death of Two Scientists.*

The medical faculty of the University of Vienna has sustained a severe loss by the death of Prof. Julius Bartel and Prof. Hans Pollitzer, two of its youngest but most active members. Bartel's name is well known to students of pathological anatomy and especially to those working on tuberculosis and constitutional disorders. He reached only the age of 52 years, but during the last 25 years was the actual, though not the nominal, head of the post-mortem room of the Vienna General Hospital. Whilst still a young student he published a series of papers on the morphology of tumours and on endocarditis, and later, at the suggestion of Weichselbaum, investigated the mode and portals of bacterial infection, especially by tuberculosis, and represented Austria at the Sixth International Congress on Tuberculosis in Washington. Prof. Bartel paid great attention to the lymphatic system and to the problem of constitution. He combined clear observation with speculation, and thus turned to the influence of climatic factors on health and mortality, publishing an outline of a work on this subject which his sudden death has not allowed him to complete. Prof. Pollitzer, who was only 48, was responsible for advances in the science of hæmatology, especially from the morphological standpoint. Although dangerously ill—he suffered from progressive tuberculosis of the larynx and lungs—he was continuing his researches on parenteral albumen, and on the action of peptonates, especially as a styptic in hæmoptysis, when his death occurred.

## The Services.

### ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. J. Whelan is placed on Retd. List.

Surg. Comdr. R. Kennedy is placed on retd. list with the rank of Surg. Capt.

#### ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Lt. G. E. Spero to be Surg. Lt.

### ROYAL ARMY MEDICAL CORPS.

Lt.-Col. D. L. Harding retires on retd. pay.

Maj. J. M. M. Crawford to be Lt.-Col., vice Lt.-Col. D. L. Harding.

Maj. O. W. McSheehy to be Bt. Lt.-Col.

#### ARMY RESERVE OF OFFICERS.

Lt.-Col. G. O. Chambers, retd., to be Lt.-Col.

Maj. J. Vallance, retd., to be Maj., and Maj. C. J. H. Sharp, late Temp. Capt., R.A.M.C., to be Maj.

#### TERRITORIAL ARMY.

Capt. W. J. H. Davies, having attained the age limit is retd., and retains his rank.

### INDIAN MEDICAL SERVICES.

Kundan Lall Jetly to be Temp. Lt.

Capt. Pirojsha Merwanji Antia is transferred to the temp. non-effective list.

The Government of the Central Provinces invite applications from Indian or Anglo-Indian women graduates for a State Scholarship of £300 per annum, plus 7½ per cent. bonus, tenable in the United Kingdom or foreign countries. The scholarship will be awarded for study or medicine or other professions, and will be tenable for three years in the first instance with the possibility of extension. The services of Capt. G. R. McRobert, Wazerestan District, are temporarily placed at the disposal of the Government of Burma. Lt.-Col. G. Macpherson, professor of ophthalmology in the Grant Medical College, has returned to India from long leave.

### DEATHS IN THE SERVICES.

Fleet Surg. Alexander George William Bowen, R.N., retd., who died on Jan. 4th at Plymouth, aged 62, joined the Royal Navy as surgeon in 1891, and served in the gunboat *Partridge*, in the West Indies, and at the Plymouth Division, Royal Marines. He became staff surgeon in 1899, and in 1901 served in the sloop *Beagle* on the Cape and West Africa stations. Later he joined the cruiser *Amethyst* in the Atlantic Fleet, and in 1907 the battleship *Canopus*, when he was promoted to fleet surgeon. He also served in the battleship *Agamemnon*.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN. 2ND, 1926.

*Notifications.*—The following cases of infectious disease were notified during the week: Small-pox, 203 (last week 178); scarlet fever, 1985; diphtheria, 1069; enteric fever, 44; pneumonia, 1807; puerperal fever, 55; cerebro-spinal fever, 4; acute poliomyelitis, 2; encephalitis lethargica, 32; dysentery, 8; ophthalmia neonatorum, 93. The figures in nearly every case are substantially greater than those of the previous week, which, as we have already remarked, were reduced by the holiday season. There were no cases of cholera, plague, or typhus notified during the week.

Of the 203 cases of small-pox, 90 (last week 106) were reported from the county of Durham; 20 (last week 39) from the county of Derby; and 54 from the West Riding of Yorkshire, 48 of which occurred in Rawmarsh.

*Deaths.*—In the aggregate of great towns, including London, there were 4 deaths from enteric fever, none from small-pox, 87 from measles, 10 from scarlet fever, 44 from whooping-cough, 53 from diphtheria, and 123 (previous weeks 85 and 132) from influenza. In London itself there were 11 deaths from measles, 22 from diphtheria, 20 from diarrhœa and enteritis under two years, and 27 from influenza.

# Correspondence.

"Audi alteram partem."

## FUNCTIONAL OR ORGANIC?

*To the Editor of* THE LANCET.

SIR,—Regarding the thoughtful article under this title by Dr. C. P. Symonds published in THE LANCET of Jan. 9th, may I be allowed to emphasise the important part played by the blood in the genesis of functional nervous disorders? It is of the utmost importance that the physician should fully realise the potent influence of the blood on the feelings (=the sensations and emotions). It would scarcely be an exaggeration to say that the entire range of morbid feelings, both sensory and emotional, may be produced by morbid states of the blood. Nothing better shows this than the great variety of morbid feelings which can be produced by drugs. The peri-neuronic lymph plays, as it were, upon the mind-organ, either upon the grey matter directly or upon the sensory end-organs—these constituting a species of psychic keyboard—and by virtue of its manifold and ever-changing constituents causes the feelings to be modified in an infinite variety of ways.

Bearing in mind how largely the feelings bulk in the mental personality—that pleasure and pain, happiness and misery, the sense of existence itself (panæsthesia as we may term it), are all compounded of feelings, remembering also the influence of the feelings on thought and on conduct, it will be seen how profoundly the whole mental fabric is influenced for good or ill through the blood. Consider, for instance, the influence of the blood on (*a*) the special sensations, (*b*) other sensations, (*c*) the appetites, (*d*) panæsthesia, (*e*) the emotions. (*a*) All the special sensations may be influenced through the blood: functional blindness may occur in uræmia, deafness, tinnitus, and giddiness in a variety of toxæmias. (*b*) Other sensations: pains, general or local, are common in the toxæmias of febrile diseases, such as influenza, neuralgia is common in anæmia, and has, indeed, been described as "a prayer for healthy blood"; headache and other morbid cephalic sensations (e.g., sensations of pressure, heaviness, lightness, bursting, burning, crawling) are common accompaniments of the morbid blood states resulting from disturbance of the endocrine function of the ovaries; headache is also a common feature of many different kinds of toxæmia, such as those of the specific fevers, uræmia, indigestion, and drugs; pruritus and other cutaneous dysæsthesias may result from morbid blood states; a feeling of fidgetiness and many other muscular dysæsthesias may accompany morbid blood states. (*c*) The appetites: thirst, hunger, erotism (e.g., the rut) are largely dependent upon the state of the blood; normal sleepiness is chiefly produced through the blood, and the influence of the hæmic factor in this direction is also observed in the drowsiness of indigestion and the torpor of fever. (*d*) Panæsthesia: Seeing that individual sensations are profoundly influenced by the blood, it follows that the panæsthesia, which is a compound of them, is equally susceptible to hæmic influence. There is abundant evidence that the feelings of wellness and illness alike are delicately responsive to subtle changes in the blood. (*e*) The emotions: The influence of the blood on the emotions is equally profound. When the condition of the blood is such as to cause a pleasant panæsthesia pleasant emotions are apt to arise, and contrariwise as regards an unpleasant panæsthesia. It is probably not very wide of the truth to say that an intensely pleasant panæsthesia is incompatible with a downright unpleasant emotion, and, contrariwise, that an intensely unpleasant panæsthesia is incompatible with an acutely pleasant emotion. A pleasurable panæsthesia, especially the sense of exuberant well-being, tends to call forth joyousness and to foster a belief in self. It constitutes the fundamental psychic characteristic of the megalomaniac, whether as met with in everyday life or in the asylum. A painful panæsthesia in the shape of profound malaise tends, on the other hand, to evoke a feeling of gloom and self-distrust.

The blood may exercise a more specific influence on the emotional nature. Consider the apathy of the myxœdematous patient, the intense nervousness and agitation of the sufferer from Graves's disease, the violent emotionalism exhibited during the period of the rut, the altered emotional tone at the menstrual epoch and the climacteric, the irritability of the naughty child with the bad breath, or of the gouty man on the eve of his attack, the elation produced by alcohol, and the peculiar emotional effects of certain drugs, such as cannabis indica. No more striking instances of the effect of the blood upon emotionality could be adduced than those afforded by Graves's disease, the rut, and alcohol; the altered state of the blood in Graves's disease may change a calm, level-minded, self-disciplined, strong-willed woman into an excitable, agitated being, startled at the least noise and even by her own shadow, and incapable by any effort to control the raging storm within her. At the period of the rut the animal becomes restless, excitable, and (though ordinarily perhaps quite docile) ill-tempered and even dangerous, ready to fight its rivals to the death. As regards alcohol its emotional effects are manifold; it may make a shy man bold, a reserved man expansive, a mild man combative, a depressed man gay, a surly man genial, a cold man ardent, a close man generous. There is, indeed, hardly limit to the emotional effects which may be produced by this and kindred substances. The essential clinical features of most minor mental disorders (psychasthenia, hysteria, borderland insanity) is a morbid emotional state, and I cannot doubt that the latter is chiefly due to a morbid state of the blood, in which disturbed endocrine function often plays a prominent part.

A person's emotional temperament is, in large measure at least, determined by his blood. The reason why one person feels habitually well and in good spirits and another poorly and depressed is not so much because the mind instrument is in the one case specially adapted for mirthful music and in the other for minor harmonies, as because it is differently played upon by the blood in the two cases. It is scarcely an exaggeration to say that if two persons were to exchange bloods they would at the same time exchange temperaments. We are, I think, bound to conclude that individual differences in mental temperament are largely determined by differences in the compositions of the blood. And just as the habitual emotional note which we term mental temperament is largely influenced by the blood, so also are those transient changes in it from day to day and hour to hour which we term moods. Our moments of spontaneous depression result in the main from the action of depressants; our spells of exuberant well-being, of exhilaration, self-assurance and vaulting ambition, when all the world seems fair and no obstacle too great to surmount, no goal too difficult to win, are due to mild auto-intoxication produced by blood stimulants. May not genius owe its spells of inspiration to their influence?

As regards the influence of the psychogenic factor in neuroses and psychoses, it has to be remembered that psychic traumata, whether in the form of severe shock or petty household worries, by disordering metabolism, tend to vitiate the blood, thus setting up a vicious circle. The great desideratum for the nervous patient, indeed for all of us, is to cultivate the tranquil mind.

I am, Sir, yours faithfully,

Harley-street, W., Jan 9th, 1926. HARRY CAMPBELL.

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## IDIOPATHIC RISE OF TEMPERATURE

*To the Editor of* THE LANCET.

SIR,—Your Paris correspondent recently gave (THE LANCET, Dec. 26th, 1925, p. 1357) a report of Dr Remlinger's communication to the French Academy of Medicine on this subject. The syndrome is, I think, the same as that described by me in 1920 as "continuous fever of sympathetic origin" (*Annales de*

*Médecine*, 1920, vii., 450). The only difference consists in the longer duration of the rise of temperature in my own cases. For weeks, for months, for years even, our patients showed elevation of temperature for which no cause could be found, no tuberculosis, no general infection, no focal infection. Temperature subsided when patients ceased to worry over it or to use the thermometer; it subsided also with rest, removal to a cool country, and various psychotherapeutical measures. The characteristic feature in my cases was an evidence of intense excitability of the sympathetic system detected by various pharmacological tests.

I attributed this "constitutional hyperthermia" to an inherent instability of the heat-regulating centre which, as is generally admitted, is part of the sympathetic system. On account of this instability there is a lowering of the threshold of the factors which raise normal temperature such as fatigue and emotion. I remarked that this instability of the thermic centre may be dependent on the chemical regulating organs of body heat, that is on the endocrines. It would be interesting to me to know if this syndrome is met with in England. I am of Dr. Remlinger's opinion that climatic factors play a great rôle in its appearance; in Greece the syndrome is met with more frequently in the hot months. It is of common occurrence in Greece. During the war, as consulting physician to the Greek army, I often had difficulty in distinguishing this "sympathetic fever" from tuberculosis.—I am, Sir, yours faithfully,

A. P. CAWADIAS, M.D., M.R.C.P.,
Senior Physician and Lecturer for Clinical Medicine,
Jan. 5th, 1926. Evangelismos Hospital, Athens.

## LAND REFORM AND SLUMS.

*To the Editor of* THE LANCET.

SIR,—Housing is one of the greatest medical problems. The housing of the people is much behind the requirements of the day, and large numbers are still very badly housed. Go to places like Becontree in Essex and Yardley or Stechford, suburbs of Birmingham, where houses for the working classes have been put up by the thousand in the last few years, and see them. It is true they have generally provided quarters which are far superior to those which many of the occupiers had to inhabit previously. But measure their capacity, inquire what is their rent, taking into account the expense of travelling to and from the place of work, examine the qualities they possess for enduring. Compare these little houses or flats—hundreds of them only three-roomed—and the materials used in them with some of the many small houses of Georgian or early Victorian days, or with little country cottages still in use, put up two or three hundred years ago. Ask any architect who has built for the well-to-do, and also participated in one of these schemes for housing the workers, what are his feelings on the cheese-paring, cost-cutting, cold and calculated restrictions which are imposed before they are erected, restrictions unfortunately necessary under present circumstances. Such comparisons bring the conclusion that what are built to-day will be looked upon as meagre and mean within a generation.

But what about the real slums now existing, and what about present-day overcrowding? Will the schemes of the Liberal Land Committee, should they come to fruition, really end these evil things soon? Is it on the right track to make a clear distinction between urban and agricultural land? To-day, both in law and in every-day practical usage, the distinction is ever arbitrary and changing. The latest available returns show over 14,000 condemned houses still in occupation, and condemnations are lenient. Although roughly half a million houses have been completed since 1919, that does not make up for the previously existing shortage, and the present rate of construction is in many cities insufficient to cope with the rate of increase of population. Manchester, for example, has an admitted shortage of 20,000 houses now, yet is to build only about 2000 a year. In Scotland there is an accumulated deficit, it is calculated, of 150,000 houses, the annual requirements of the country are about 10,000; yet in the year 1925 it is expected that not more than 8500 will have been finished. In the county of Durham only about 10,000 houses altogether have been built since the end of the war, during which period an increase of population of approximately 70,000 has occurred.

The idea of the garden city was put forward by Charles Kingsley as long ago as 1857. Yet to-day there are actually only two garden cities in existence, not counting Port Sunlight and Bournville. The clearance of the notorious London slums in the Tabard-street and Bradey-street areas began over 30 years ago. Yet to-day in neither area is the clearance by any means complete. Since the London County Council began it has spent over £1,000,000 on slum clearances. To be a measure of public health any scheme of land reform must bring about quicker results than these. It seems improbable that any scheme can succeed which lays an increasing burden upon the public purse, and does nothing to diminish costs or to increase wages and the number of building operatives. By applying tests of this sort the value can be appraised of any reform purporting to be a measure likely to improve the public health.

Let us hope that the Liberal Land Committee's plans will pass these tests. The Committee has worked hard and has set forth the subject with frank breadth of view, grasp of essentials, and a wealth of detail which is wholly admirable. But the remedies suggested seem complicated to the uninitiated and are, apparently, not satisfying to the party's supporters. Mr. Lloyd George himself, with characteristic skill, has assumed the power to give the people of England better housing, a more spacious life if only his remedies are adopted. He sincerely regards his land campaign as a public health measure. But many doctors have contracted the habit of examining with caution the plans of politicians, and it would be well to investigate afresh the whole subject of the connexion between land reform, better housing, and public health. If that is done much good will accrue. Should the Liberal Land Committee's plans be found to pass the suggested tests, there is no reason why they should not be taken up irrespective of party.

I am, Sir, yours faithfully,
LUCIUS SEVERUS.

## EMETINE IN THE TREATMENT OF HEPATIC ABSCESS.

*To the Editor of* THE LANCET.

SIR,—With reference to the article on this subject by Dr. P. H. Manson-Bahr and Dr. R. M. Morris in your issue of Jan. 9th, I think the following opinions of Dr. Manson-Bahr should be quoted. In the *Tropical Diseases Bulletin* for January and April, 1925, Dr. Manson-Bahr accepted the accuracy of Captain Fry's diagnosis without demur, although he now finds the records not very convincing. As regards treatment; in the *Bulletin* for January, 1925, Dr. Manson-Bahr says: "Surgeons should make the use of emetine an essential part of pre-operative preparation, *if not the sole treatment of liver abscess* . . . . It would appear that aspiration could be dispensed with in many such cases of amœbic abscess." And in the *Bulletin* for April, 1925, he states that "he has recently confirmed the view that emetine therapy alone can promote absorption of pus from a liver abscess without surgical interference. . . . In a recent case the patient developed a fourth abscess, three having been drained, *the very pronounced physical signs and symptoms of which were resolved in a short time by emetine combined with E.B.I.*" (The italics in both cases are mine.) The opinions given in your current number and those just quoted are completely contradictory, and one is left guessing as to the cause which, after Dr. Manson-Bahr had advanced from scepticism to understanding, has prompted this public confession of his return to his first state of mind.

I am, Sir, yours faithfully,
London, Jan. 11th, 1926. V. S. HODSON.

## STETHOSCOPY OF THE HEART.

*To the Editor of* THE LANCET.

SIR,—Dr. Otto May's denunciation of the dangers of stethoscopy should not have been directed at the general practitioner, but at the teachers in medical schools for misdirecting their students as to the cause of the sounds associated with the movements of the heart. For nearly 100 years it has been taught that the first sound of the heart is due mainly to contraction of the heart muscle, whereas it is known that a muscle when it contracts produces no sound. The second sound is said to be due to the banging together of the cusps of the valve, yet if they be eaten away by disease the sound is magnified into a marked murmur. If the cause of the heart sounds be not known, how can the cause of their modification be properly assessed?

I am, Sir, yours faithfully,

Swansea, Jan. 11th, 1926. G. ARBOUR STEPHENS.

## THE VENTILATION OF ENGINE-ROOMS IN MOTOR VESSELS.

*To the Editor of* THE LANCET.

SIR,—In view of the enormous increase in the proportion of tonnage now fitted with motors, and the still higher proportion probable in the future, I venture to bring forward a human aspect in their respective economics which may have far-reaching consequences. I refer to the injurious effects I have noticed of the vapours, inseparable from the Diesel and similar motors, upon the engine-room staffs. These are so obvious that at the end of a voyage anyone could separate with accuracy the engine-room staff of a motor vessel from that of a steamship. Not all are equally affected, but an occupation which causes headache, drowsiness, vomiting, loss of appetite, an evident pale yellow tinting of the skin, and a great susceptibility to an obstinate type of furunculosis, is likely to have a permanent ill-effect upon the strongest constitution in time.

The obvious cause is inadequate ventilation, but the prevention is anything but simple. In the ordinary way ships are more difficult to ventilate than any building, and here a super-excellent scheme is necessary. In the meantime motor vessels are being constructed with more or less the same ventilation as exists in the engine-rooms of steamships, which falls far short of the motor vessels' requirements. At present air is propelled by fans from outside into the engine-room and heated if necessary, as it must be hot because the intake of air for the cylinders is directly from the engine-room itself. The vitiated air from the engine-room with the vapours escapes through the skylights and the exit ventilators, their efficiency depending upon the wind speed caused by the motion of the vessel. The vapours are densest when the vessel is manœuvring in port, and at this time the ship's speed is at its lowest. In every engine room, moreover, there are numerous obstructions to the free movement of the air, such as tanks and orlop decks, which act as baffle-plates and cause pockets of stagnant air. The escape for the fumes from the crank case, which are particularly evil-smelling, opens directly into the engine-room instead of outside. The engineers themselves are partly to blame because they invariably leave the small cock on the exhaust from each cylinder open, so that any cylinder misfiring can be detected at once. There are many other defects, but these serve to illustrate the conditions existing.

I suggest that the whole question of the ventilation of the engine-rooms of motor vessels requires careful consideration, as I am convinced that the present conditions are definitely adverse to the health of the engineers.

I am, Sir, yours faithfully,

A. G. G. THOMPSON, M.D.,

Assistant M.O.H., Liverpool Port Sanitary Authority.

Jan. 11th, 1926.

# Obituary.

## JOHN GRAY McKENDRICK, M.D., LL.D. ABERD., F.R.C.P. EDIN., F.R.S.

THE death of Prof. J. G. McKendrick at Glasgow on Jan. 2nd removes a man who helped to lay the foundations of modern physiology and in whose life character and ability were wholly responsible for success.

John Gray McKendrick was born at Aberdeen in 1841. He was early left an orphan and spent his school days at Braco, in Perthshire, where, at 13, during a long summer, he herded sheep from 5 in the morning until 8 at night. At 14 he entered the office of a lawyer in Aberdeen, to whom he was apprenticed at a pittance; for nearly two years his landlady managed to feed and clothe him for *5s. 6d.* a week. In spite of long hours at the office he began an elaborate course of home study; he was a good swimmer, played cricket, and spent his annual two weeks' holiday at Braco helping in the harvest. A great love of Nature led him to collect plants and marine animals along the shores of the Bay of Nigg, and he started a little aquarium which evidently brought him some repute, as he was asked to show it at the British Association meeting in 1859, when the Prince Consort was chairman. There he saw Gould, Richard Owen, Huxley, Roderick Murchison, and Faraday; already science had begun to call him. Rising often at 5 A.M. and working till his office opened at 10, McKendrick passed the Medical Preliminary at Aberdeen in 1861. Dismissed by his lawyer master because he dallied at a concert where Jenny Lind was singing, he moved to Edinburgh, entered the classes in anatomy and natural history, and eked out a living by working eight hours a day for the *Daily Review* at 12s. a week. "The hours at the University," he said, "were the delightful part of the day. They made up for all the drudgery." Yet the teaching and examinations of that time were far from satisfactory. There were no practical classes, few demonstrations, and no familiarity with apparatus. "But," wrote Prof. McKendrick, "there was a sound knowledge of general principles and a strong belief in one's self. In Edinburgh there were no fewer than seven theories of inflammation in vogue amongst the examiners!" At Edinburgh he heard Goodsir lecture and saw Turner and Joseph Bell demonstrate. His teachers were amongst the giants of those days: James Miller, the surgeon, Simpson and Syme, whose controversy was at its height, and Laycock in the chair of medicine.

McKendrick's struggles were pathetic—but he took Goodsir's medal in 1863, and was a prizeman in surgery, obstetrics, and medicine, though zoology remained his favourite study. In 1864 he graduated as M.D., with distinction, at Aberdeen, and after some months at the infirmary at Chester, where he saw 200 cases of small-pox, became surgeon to the Eastern Dispensary at Whitechapel, where patients were dealt with at the rate of one every two minutes. This did not attract him, and he was always on the look-out for other work, applying for the post of prosector at the Zoological Gardens, a practice in Sark, a job on a tea plantation in Assam, and work in Earlswood Asylum. At last he was placed on a short list of 87 candidates for a house surgeon appointment at Fort William, and having told the trustees that he was "brought up in the Established Church; but when I came to the years of discretion, I joined the Free Church," was given the post. In Fort William he spent four happy years, giving his first lectures on scientific subjects to the people around; here he joined the Volunteers, and here in 1865 he married Miss Mary Souttar, of Aberdeen.

In 1869 McKendrick by happy chance met Hughes Bennett and went to Edinburgh as his assistant; his duty was to teach the subject of histology, then recently introduced. Amongst his students were Miss Jex-Blake, Sir William Watson Cheyne, Prof.

Cash, Prof. Ewart, and Sir George Beatson. Here he lectured to the first physiology class wholly composed of women. Disappointed of the chair of physiology on Bennett's retirement, McKendrick offered a course of 40 lectures to women only, and 150 of them enrolled. Soon afterwards he met James Dewar, who suggested coöperation in the research which led to the discovery that an electric current is produced in the optic nerve when light falls on the retina. This work was published in 1873; for the first time a current of action had been demonstrated in a sensory nerve as the result of the normal stimulation of its end organ. Holmgren, of Upsala, made the observation independently almost at the same time. Dewar and McKendrick later investigated the physiological action of chinoline and certain pyridine bases, and this work was amongst the first research which correlated chemical constitution and physiological action.

In 1872 McKendrick was elected F.R.C.P. Edin., and in the same year visited Germany and made the acquaintance of Helmholtz, whose memory he ever afterwards revered and whose life he wrote. Then, in 1876, came his appointment as Professor of Physiology at Glasgow, which he held until 1906. He found a lecture room, a sphygmograph, a few old microscopes, and some diagrams; on these he built up the department of physiology which preceded the present institute. He was the most pleasing of lecturers, and in 1881 was appointed Fullerian Professor of Physiology at the Royal Institution, where he gave Friday evening discourses and Christmas lectures to children. In 1884 he was elected Fellow of the Royal Society, and later served on the Council, holding also numerous university examinerships.

Prof. McKendrick's written works have the same pleasant flavour as his spoken words. To the Encyclopædia Britannica he contributed much, and in 1878 published "Outlines of Physiology," followed ten years later by a "Text-book of Physiology." Conjointly with one of his assistants, Dr. William Snodgrass, he produced "The Physiology of the Senses"; physiological acoustics had always interested him especially. He also published poems, and his love of music and poetry contributed largely to his singularly attractive personality. A savant and a physician, he was also a real naturalist in the sense given to that term by his friend Sir William Gairdner, "a humble, reverent, and exact follower and student of Nature." A man of distinction himself, he was privileged, as he said, to count Lord Kelvin, John Caird, and Lord Lister among his friends.

Prof. McKendrick's wife died some years ago. He is survived by two sons, Dr. J. Souttar McKendrick, of Glasgow, and Dr. Anderson McKendrick, of the Royal College of Physicians' Laboratory, Edinburgh, and late colonel in the Indian Medical Service; and also by a daughter, the wife of Dr. A. A. Warden, of Cannes. His other daughter, who was married to the Rev. R. Bruce Taylor, Principal of Queen's University, Kingston, Ontario, died some months ago. He was buried on Jan. 6th in the family vault in Cowie Churchyard at Stonehaven. It was at this little fishing town overlooking the North Sea that Prof. McKendrick used to spend his summer holidays, and it is largely to his influence that it owes its popularity.

## JOHN BARTHOLOMEW GILES GIDLEY-MOORE, L.R.C.P. LOND., M.R.C.P. EDIN.

Dr. Gidley-Moore, who died last week at his residence at Fyfield House, near Ongar, was a familiar figure locally as medical officer of health, ambulance instructor, and member of the board of guardians. He qualified in 1872 from St. George's Hospital and spent 35 years in country practice; his retirement from active work of this kind was only the occasion for greater activity in other spheres, for he was chairman, treasurer, and correspondent of the parish schools, vice-chairman of the parish council, and an original member of the Essex Insurance Committee. Dr. Gidley-Moore was held in respect for his strong views on social matters which he held irrespective of personal advantage. To uphold the principle of individual thrift he would accept no superannuation for himself or sanction it for others, and he was an influential member, sometime vice-president, of the Poor-law Medical Officers' Association. In his ambulance work he ultimately became senior surgeon of No. 1 Division and held both Diamond Jubilee and Coronation medals for long service.

## GERALD GODFRAY GIFFARD, K.C.I.E., C.S.I., M.R.C.P. LOND., M.R.C.S. ENG.

With the death in London on Jan. 5th of Major-General Sir Gerald Giffard, on the eve of his sixtieth year, the Indian Medical Service loses one of its most distinguished and many-sided officers.

Gerald Godfray Giffard was born in Guernsey on Jan. 19th, 1867, the son of Mr. Agnew Giffard, resident engineer of the harbour works, who was drowned off Sark in the following year, and a nephew of Sir Henry Giffard, K.C. He was educated at Elizabeth College, Guernsey, and studied at St. Bartholomew's Hospital, qualifying with the conjoint diploma in 1889, and taking the M.R.C.P. a few years later. In 1890 he entered the Indian Medical Service, becoming captain in 1893, major in 1902, lieut.-colonel in 1910, and major-general in 1918. He accompanied the Chin Hills and Manipur Expeditions, and being a keen and hardworking officer was marked early for promotion and was translated to Madras in 1897 as resident surgeon to the General Hospital. He became district medical and sanitary officer at Chingleput, and in 1901 was appointed to his first chair in the Madras College, that of materia medica. During the following years he filled in succession the chairs of surgery and midwifery, with the added responsibility of directing the Government Maternity Hospital at Madras. By this time he had become known as a skilful surgeon and gynæcologist as well as a sound practical teacher of midwifery, and it was largely owing to his initiative and persistent effort that Madras came into possession of the finest and best equipped children's hospital in the East. As principal of Madras Medical College he was responsible for numerous improvements in its organisation and work. During the war Giffard filled a number of important positions. In 1915 he was in command of the Madras Field Hospital Ship, a highly organised and elaborately equipped institution with a brilliant medical staff chosen from the Madras Medical College. In those days, now happily forgotten, Giffard was one of the first to recognise the shortcomings of the medical field organisation and used his influence to foster the inquiry of the Mesopotamia Commission which followed in 1917. This inquiry was doubly welcome to him, for it was the means of altering the whole attitude of the Government towards the medical requirements of the army in India. Giffard was transferred to the Northern Command in 1917, when he controlled the large Indian general hospital at Rawalpindi until his selection (at an unusually early age) as surgeon-general with the Government of Madras took him back to the scene of his earlier work.

Sir Patrick Hehir, who was associated with him in one way or another for over 35 years, appraises Sir Gerald Giffard as an administrator with a well-balanced mind and a wide grasp of the many complex and conflicting medical problems that beset statesmen in India. "One of my most pleasant recollections," writes Sir Patrick Hehir, "is the fine tone that existed in the whole of the Madras Medical Service when I visited that city in 1918. Giffard seemed to me to be the Little Father of a large and capable medical family. We worked together on the Medical Services Committee to which Giffard was a tower of strength. One of his last great efforts was to get the Madras Government to subsidise private medical men to go into practice in rural areas. Had this policy taken effect throughout India, it would, within a decade, have altered for the better the whole aspect of the medical care of the indigenous masses. Giffard was a fine personality, a deep and clear thinker, a bold and courageous medical administrator, a true and reliable friend, and a most cheerful companion. In his passing many like myself have lost a valued friend."

After his return from India Sir Gerald Giffard retired to Guernsey, living at Lafosse, St. Martin's, where he became honorary medical superintendent to the Lady Ozanne Maternity Home and general secretary to the local branch of the League of Nations. Sir Gerald Giffard married in 1898 Melicent, eldest daughter of James Grose, C.I.E., I.C.S., by whom he had two sons and two daughters.

## WILLIAM NETTLE, M.R.C.S. ENG., J.P., V.D.

Dr. Nettle's death at Liskeard at the age of 77 years removes a well-known Cornish practitioner who had throughout a long life taken his full share in all phases of public life. Born near St. Austell, he was apprenticed when still in his teens to Dr. Alfred Prideaux, a Bartholomew's man, so that it was natural for young Nettle, in his turn, to do his medical study at St. Bartholomew's, qualifying from there in 1870 and returning—after a resident appointment at the Royal Cornwall Infirmary, Truro—to join Dr. Prideaux in partnership. Not long afterwards he married Kathleen Vivian Prideaux, his partner's third daughter, and succeeded later to the whole of a large practice. In his later years of practice Dr. Nettle was also medical officer of health for the borough and rural district of Liskeard, surrendering for this purpose his seat on the town council, of which he had been a member for ten years and mayor on four occasions. During the last few years of his life he was a member of the board of guardians and for a long time he was both county and borough magistrate. As a Churchman he stood for progress; he was vicar's warden for 33 years and a regular sidesman. He was a member of the Masonic order for more than 50 years and actively espoused the cause of Masonic charities. His connexion with the Volunteers began with a surgeon-lieutenancy to the 2nd Volunteer Brigade and he ultimately became P.M.O. to the Devon and Cornwall Infantry Brigade, retiring with the honorary rank of Lieut.-Colonel R.A.M.C. About six months ago he had a seizure from which he never completely recovered. He leaves a widow, a married daughter, and five grandchildren.

THE LATE DR. ALEXANDER DICK.—Dr. A. Dick, who died at his house at Llanelly on Dec. 27th, was 47 years of age and had been in poor health for some time. He was born in County Down and was educated at Queen's College, Belfast, and Edinburgh University, taking the Scottish triple diploma in 1905. Soon afterwards he went into an assistantship at Llanelly; then he moved to Cardiff, but returned later to Llanelly, which he did not leave again except on war service. For several years he held a captain's commission in the Royal Army Medical Corps, being attached to the 4th Welch Territorial Battalion. Dr. Dick was a prominent Freemason. He was a popular and genial man, whose happy disposition brought him many friendships. He leaves a widow and three children.

DONATIONS AND BEQUESTS.—Towards the appeal for £500,000 for the reconstruction and development of the University of Leeds, launched in October, 1925, during the past three and a half months £238,000 have been received.—The King, patron of the King Edward Hospital Fund for London, has sent his annual subscription of £1000 to the Fund.—Mr. George Travis, of Wardle, near Rochdale, left £1000 each to the Oldham Royal Infirmary and the Rochdale Infirmary, and £500 to the Memorial Homes for Crippled Children, Rochdale.—Mr. Thomas Brett Daniell, of West Bergholt, Essex, who left estate of the value of £15,080, left a bequest of £500 to the Royal Eastern Counties Association and many legacies, and the residue to his sister for life, and at her death, after the payment of certain bequests, the ultimate residue between the Royal Eastern Counties Association for Idiots, the Essex County Hospital, Colchester, and Arthur Winsley's Charity, Colchester.

# Medical News.

UNIVERSITY OF LONDON.—At recent examinations the following candidates were successful:—

M.D. EXAMINATION.

*Branch I., Medicine.*—Davis E. Bedford, Middlesex Hosp.; Frank Brockington, King's Coll. Hosp.; Gwenvron Mary Griffiths, London Sch. of Med. for Women; David Krestin, London Hosp.; James Maxwell, St. Bart.'s Hosp.; Alan A. Moncrieff and David C. Muir, Middlesex Hosp.; and Selwyn E. Tanner and Hubert N. Williams, Univ. Coll. Hosp.

*Branch III., Psychological Medicine.*—Alexander Walk, St. Bart.'s Hosp.

*Branch IV., Midwifery and Diseases of Women.*—Daryll C. Corry, Univ. Coll. Hosp.; and Gladys Hill and Dorothy M. Howgate, London Sch. of Med. for Women.

*Branch V., State Medicine.*—Joseph V. Landau, St. Bart.'s Hosp. and Univ. Coll. Hosp.

A course of six lectures on the Physiology of Reproduction will be given by Dr. A. S. Parkes at University College on Jan. 18th and 25th, Feb. 1st, 8th, 15th, and 22nd, at 5.30 P.M.

A course of eight lectures on Metabolism of Carbohydrate and Fat will be given by Dr. J. A. Hewitt, at King's College, on Jan. 21st and 28th, Feb. 4th, 11th, 18th, and 25th, and March 4th and 11th, at 5 P.M. Admission is free without ticket.

UNIVERSITY OF LIVERPOOL.—At recent examinations the following candidates were successful:—

MASTER OF HYGIENE.

*First Examination, Part II.*—B. L. Davis.

DIPLOMA IN PUBLIC HEALTH.

*Part II.*—G. L. Brocklehurst, C. Cookson, A. O. Ross, and C. H. Walsh.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—On Jan. 18th and on the following Monday, Wednesdays, and Fridays, until Jan. 29th, Sir Arthur Keith will give a series of six lectures at the College, at 5 P.M. each day, on Fossil Remains of Apes and Man, and their Bearing on the Evolution of Human Races. The lectures will be illustrated by preparations from the museum and by lantern slides. On Jan. 18th he will discuss the Anatomical Characters of the Galilee Skull.

TUBERCULOSIS SOCIETY.—Following an address on Tuberculosis in Wales, by Prof. Lyle Cummins, at 1, Upper Montague-street, Russell-square, London, W.C., at 8 P.M., on Jan. 15th, there will be an opportunity for members of the society to attend the annual meeting of the Society of Superintendents of Tuberculosis Institutions on Monday, Jan. 18th, at 3 P.M. The meeting will be held at 122, Harley-street, London, W., and there will be a discussion on Occupational Therapy, in which papers will be read by Dr. J. E. Chapman, Lieut.-Colonel J. R. Lord, Mrs. Kimmins, of the Heritage Craft Schools, Chailey, Dr. Jane Walker, and Dr. Esther Carling. Dr. Lucas Hammond will read a paper on Phthisical Psychology.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Dr. Herbert Spencer will give the opening lecture of the new series, arranged by the Fellowship and free to members of the medical profession, on Thursday, Jan. 21st, at 5 P.M., in the lecture hall of the Medical Society, 11, Chandos-street, London, W. Dr. Spencer will speak on Abdominal Palpation in Pregnancy (with lantern demonstration). A comprehensive course in Venereal Diseases will begin at the London Lock Hospital on Feb. 1st and continue till Feb. 27th. There will be instruction in the out-patient department and lectures on different aspects of the diseases. At the Blackfriars Hospital for Diseases of the Skin an afternoon course in Dermatology will be held from Feb. 1st to 8th. A three weeks' combined course in Diseases of Children will be given from Feb. 8th in which the Paddington Green Children's Hospital, the Victoria Hospital, and the Children's Clinic will participate. There will be morning and afternoon sessions held in all the various departments of the hospitals. A late afternoon course (4.30 to 6) will take place at the London Temperance Hospital from Feb. 8th to 19th for the convenience of the general practitioner. Queen Mary's Hospital, Stratford, will give a general intensive course in medicine, surgery, and the special departments from Feb. 15th to 27th. Daily sessions will be held from 10.30 A.M. to 5 P.M., including demonstrations of clinical methods and groups of illustrative cases. A special feature of the course will be the opportunity for the practical study of gynæcology and obstetrics. A copy of each syllabus of the foregoing courses and of the programme of the General Course may be had on application to the secretary of the Fellowship, 1, Wimpole-street, London, W. 1.

Gloucestershire Royal Infirmary.—This hospital is to be enlarged by the addition of an eye department and a laundry, at a cost of £12,000.

Nationalisation of Hospitals.—An address on this subject will be delivered to-day (Friday) at the headquarters of the Incorporated Association of Hospital Officers, 28, Bedford-square, London, W.C., by Mr. Somerville Hastings, F.R.C.S., at 7.30 P.M.

Medico-Legal Society.—A meeting will be held at 11, Chandos-street, Cavendish-square, London, W., on Jan. 19th, at 8.30 P.M., when a paper read by Dr. Godfrey Carter and Dr. Herbert W. Southgate on the Excretion of Alcohol in Urine as a Guide to Alcoholic Intoxication will be followed by a discussion.

Lord Ampthill, for many years chairman of the Central Committee for the State Registration of Nurses, was recently presented with a specially bound copy of the State Register of Nurses in recognition of his services to the nursing profession. The presentation was made by Mrs. Bedford Fenwick, the secretary of the committee, with whose name Lord Ampthill said the register would always be associated.

The Voluntary Hospital System.—The Adelphi Literary and Social Circle has arranged a debate on a motion by Mr. A. S. Coombes, that the Voluntary Hospital System has proved Inadequate to the Needs of the People, which will be held on Tuesday, Jan. 19th, at 8 P.M., in the ballroom of the Lyceum Club, 138, Piccadilly, London, W. Councillor Mrs. Lionel Harris will preside and Mr. Gilbert G. Panter, secretary of the Royal Northern Group of Hospitals, will oppose the motion.

National Memorial to Queen Alexandra.—The scheme for the Queen Alexandra National Memorial Fund for the assistance of Queen Victoria's Jubilee Institute for Nurses was inaugurated by a meeting at the Mansion House, London, on Thursday of last week, under the chairmanship of the Lord Mayor. It was announced that £10,500 had already been subscribed, and it is understood that considerable additional donations have since been received. A small portion of the total is to be devoted to a " visible memorial " of Queen Alexandra.

Royal Institution.—On Tuesday, Jan. 19th, at 5.15 P.M., Prof. J. A. Crowther will give the first of two lectures at the Royal Institution, on X Rays and Living Matter. On Thursday, Jan. 21st, at the same hour, Prof. C. J. Patten will give the first of two lectures on the Language of Birds and the Breeding Factor in Birds; and on Saturday, Jan. 23rd, at 3 P.M., Mr. Henry Balfour will lecture on the Evolution of Coinage. The Friday evening discourse on Jan. 22nd will be delivered by Sir William Bragg on the Work of the Davy Faraday Research Laboratory, and on Jan. 29th by Sir William B. Hardy on Films.

Lectures on Infant Care.—A course of lectures on infant care, especially intended for creche nurses and probationers, will be given in the lecture hall, Carnegie House, 117, Piccadilly, London, W., on Thursdays, at 7.30 P.M., from Jan. 21st to March 25th. The lecturer will be Dr. Victoria Bennett, and the subjects of the first three lectures will be Duties to the New-born Baby, Natural Feeding, and Artificial Feeding. The course is in preparation for the Creche Nurses' Advanced Certificate, granted by the National Association for the Prevention of Infant Mortality and the National Society of Day Nurseries, and an examination will be held at the end, on March 27th. The fee for the ten lectures will be 10*s.*, or for any single lecture 1*s.* 3*d.*, and tickets may be obtained from Miss Maddock, 117, Piccadilly, London, W. 1.

Presentation to Prof. Rutherford Morison.—At the end of 1921 a movement was started amongst members of the profession to commemorate the work of Emeritus Professor Rutherford Morison, of Newcastle. It was decided to appeal to the profession for subscriptions to present Prof. Morison with his portrait in oils, and after defraying the cost of the portrait to devote the balance either to the formation of a medical library fund or the establishment of a scholarship or fellowship in research, or such other objects as Prof. Morison might approve. In June last we published the third list of subscriptions, which amounted to £1528. It is now announced that the portrait, painted by Mr. Harold Knight, will be presented to Prof. Morison on behalf of the subscribers by Prof. H. Brunton Angus at the College of Medicine, Newcastle-on-Tyne, on Thursday, Jan. 21st, at 4 P.M. It is hoped that as many subscribers as possible will

Middlesex Hospital Rebuilding Fund.—The rebuilding fund of the Middlesex Hospital now stands at £273,000, having risen from £216,000 in less than a month.

Princess Mary Viscountess Lascelles is to lay the foundation-stone of the extension of the Royal Infirmary, Sunderland, on Feb. 17th.

Post-Graduate Course at Sheffield.—A course of clinical demonstrations open to all qualified medical practitioners without fee is to be held in Sheffield, mainly at the Royal Infirmary, from January to March. Particulars will be found weekly in our Medical Diary.

Hunterian Society.—The annual dinner will be held at the Hotel Victoria, Northumberland-avenue, London, W.C., on Thursday, Feb. 11th, at 7.30 P.M. Applications for tickets may be sent to Mr. A. E. Mortimer Woolf, 94, Harley-street, London, W. 1.

A further application by Dr. F. W. Axham to the Royal College of Surgeons of England for the return of his diploma is receiving the consideration of the Council. It will be recalled that Dr. Axham's diploma was forfeited in 1911 following the erasure of his name from the Medical Register on account of his association with Mr. (now Sir Herbert) Barker. The Royal College of Physicians of Edinburgh is also likely to consider the question of sending back its diploma to Dr. Axham.

Lighting of Coal Mines.—The next meeting of the Illuminating Engineering Society will be held at the house of the Royal Society of Arts, 18, John-street, Adelphi, London, at 7 P.M. on Thursday, Jan. 21st, when a discussion on the Lighting of Coal Mines will be opened by Mr. Eric Farmer, investigator to the Industrial Fatigue Research Board. Those interested are invited to apply for tickets to the Hon. Secretary, Mr. L. Gaster, 32, Victoria-street, London, S.W. 1.

Medical Officers of Schools Association.—The annual general meeting of this association is to be held on Friday, Feb. 5th, at 11, Chandos-street, Cavendish-square, London, W., when Dr. R. A. O'Brien, director of the Wellcome Physiological Research Laboratories, will read a paper on the Prevention of Diphtheria and Scarlet Fever by Modern Methods. If possible, reactions will be shown. Dr. O'Brien's paper is to be read at 5 P.M., following a business meeting at 4.15 P.M., and tea at 4.30 P.M.

Chelsea Clinical Society.—A meeting of this society will be held at the Florence Restaurant, 56, Rupert-street, London, W., on Tuesday, Jan. 19th, at 8.30 P.M. It will be preceded by dinner, commencing at 7.30 P.M.; members intending to dine should inform Dr. L. D. Bailey, 42, Eaton-terrace, London, S.W. 1. The price of the dinner will be 5*s.*, exclusive of wine, and guests will be welcome. After the dinner there will be a discussion on Heliotherapy, in which Dr. Leonard Hill, Sir Henry Gauvain, Dr. Henry MacCormac, and Dr. Howard Humphris will take part.

Small-pox in Yorkshire.—Although there are over 120 cases of small-pox in the rural area around Rotherham, the town itself, owing to the prompt steps taken by the health authorities, is almost immune. Only two cases have been reported. The Ministry of Health has warmly commended the Rotherham district authorities for their prompt diagnosis and isolation of all cases. Home contacts have been put into quarantine—usually for 24 hours—to permit of thorough disinfection of infected houses. Each contact has been kept under almost daily supervision for three weeks, and it is a striking fact that all contacts have accepted vaccination during the period of quarantine.

Psychology in the Nursery.—A series of six lectures for mothers, under the general title of Everyday Psychology in the Nursery, is to be given at Carnegie House, 117, Piccadilly, London, W., beginning on Feb. 17th, at 3.15 P.M., and continuing upon the Wednesdays following. The first lecture is entitled the Super-sensitive Child, and will be given by Dr. Mary Heming Rees, whilst the other lecturers will be Dr. Elizabeth Sloan Chesser on the Problems of the School-girl, Dr. Kenneth Dickson on Health and Character, Dr. Howard Humphris on Sunlight and Psychology, and Miss Alice Jackson on Children's Books. To end the series there will be a lecture by Dr. J. R. Rees on March 24th at 6 P.M., for fathers as well as mothers, which is to be called Some Problems in Family Adjustment. Further particulars may be obtained from the Viscountess Erleigh, 65, Rutland-gate, London S.W. 7, or Mrs. Ernest Shaw, 65, Conduit-street, W. 1.

POST-GRADUATE DENTAL COURSE.—A course of seven lectures is to be given at the Royal Dental Hospital of London, Leicester-square, W.C., on Jan. 20th, and the following Wednesdays until March 3rd, at 5.30 P.M. each day. The subjects of the first two lectures will be Mouth Breathing and the Mouth as a Focus of Infection. The remaining titles and the names of the lecturers may be found weekly in our Medical Diary. The lectures will be open to all who are interested, without fee or ticket.

INQUESTS IN SALFORD.—During 1925 Mr. A. Holmes, the Salford coroner, received notification of 306 deaths and 200 inquests were held. In 110 cases the verdict was "Death from natural causes." Six males and four females committed suicide by poisoning and in three other cases death was due to accidental poisoning. Four males were found drowned. Thirteen females and five males died following injuries received in the streets, and 13 males and 10 females succumbed to injuries after being run over. There were 16 fatal burning cases. Three women died through drinking in excess.

PEOPLE'S LEAGUE OF HEALTH.—A series of eight lectures on the *Mind and What We Ought to Know About It* will be delivered at the house of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, W., beginning on Feb. 1st, at 6 P.M. The following is a list of lecturers and subjects: *Sensation, Perception, Ideation, and Attention*, Dr. R. H. Cole; *Mind and Body*, Sir Frederick Mott, F.R.S.; *Association of Ideas, Recognition, and Memory*, Dr. Thomas Beaton; *Habit, Adaptation*, Sir Maurice Craig; *Crime and Delinquency*, Dr. W. A. Potts; *Fatigue and Sleep*, Dr. H. Crichton-Miller; *Primitive Instinct*, Dr. E. D. Macnamara; *Mental Deficiency*, Dr. A. F. Tredgold. Further particulars may be obtained from the offices of the League, 12, Stratford-place, London, W. 1

## Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

### SOCIETIES.

**ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.**

**Tuesday, Jan. 19th.**

GENERAL MEETING OF FELLOWS: at 5.30 P.M.
Ballot for election to the Fellowship.
PATHOLOGY: at 8.30 P.M.
*Paper:*
Dr. Sidney Dickenson: A Simple Method of Isolating and Handling Individual Spores and Bacteria.

**Wednesday, Jan. 20th.**

*HISTORY OF MEDICINE: at 5 P.M.*
*Paper:*
Dr. Alfred G. Francis: On a Romano British Surgical Instrument, probably a Castration Clamp used in the Rites of Cybele.

**Thursday, Jan. 21st.**

DERMATOLOGY: at 5 P.M. (Cases at 4 P.M.)
*Cases will be shown.*
*Paper:*
*Prof. Levaditi*: New Discoveries in the Chemotherapy of Syphilis.

**Friday, Jan. 22nd.**

STUDY OF DISEASE IN CHILDREN: at 5 P.M. (*Cases at 4.30 P.M.*)
*Communication:*
*Dr. D. J. Hishon* (introduced by Dr. J. D. Rolleston): Gangrene of Legs following Measles (photograph).
*Cases will be shown.*
EPIDEMIOLOGY AND STATE MEDICINE: at 8 P.M.
*Paper:*
Prof. E. W. Hope (Liverpool): The Influence of the Universities on the Advancement of the Public Health.

ROYAL INSTITUTION, Albemarle-street, W.
TUESDAY, Jan. 19th.—5.15 P.M., Dr. J. A. Crowther: X Rays and Living Matter.
FRIDAY.—9 P.M., Sir William Bragg: The Work of the Davy Faraday Research Laboratory.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish square, W.
*THURSDAY*, Jan 21st.—8.15 P.M., preceded by a Demonstration at 7.15. Dr. James Hasson will make an announcement on a New Procedure in the Diagnosis and Treatment of *Leprosy*. Lieut.-Colonel W. P. Macarthur, R.A.M.C.: An address on Old-Time Plague in Britain.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.
MONDAY, Jan. 18th.—3 P.M. (at 122, Harley-street): Discussion on Occupational Therapy, and papers will be read by Dr. J. E. Chapman, Lieut.-Colonel J. R. Lord, O.B.E., Mrs. Kimmins, Dr. Jane Walker, and Dr. Esther Carling. Dr. A. Lucas Hammond will also read a paper on Phthisical Psychology.

MEDICO LEGAL SOCIETY.
TUESDAY, Jan. 19th.—8.30 P.M. (at 11, Chandos-street, Cavendish-square, W.), Dr. G. Carter and Dr. Herbert W. Southgate: The Excretion of Alcohol in Urine as a Guide to Alcoholic Intoxication.

### LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
*MONDAY*, Jan. 18th.—5 P.M., Sir Arthur Keith: The Anatomical Characters of the Galilee Skull.
WEDNESDAY.—5 P.M., The Interpretation of Endocranial Casts from Skulls—Ancient and Modern.
FRIDAY.—5 P.M., Ancient Dwellers in the Thames Valley.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.
MONDAY, Jan. 18th, to SATURDAY, Jan. 23rd.—BETHLEM ROYAL HOSPITAL, S.E. Lecture-demonstrations in Psychological Medicine at 11 A.M. Tues. and Sat., Dr. Porter Phillips and Dr. Thomas Beaton: The Psychoses.—NORTH-EASTERN FEVER HOSPITAL, St. Ann's-road, Tottenham. Wed., 2.30 P.M., Sat., 11 A.M., Dr. Frederic Thomson: Demonstration in the Diagnosis and Treatment of the Acute Infectious Diseases.—LONDON HOSPITAL. Tues., 2 P.M., Special Clinical Demonstration by Mr. Souttar.—NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W. Intensive Course (first week).—QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, N. Special course, daily lectures, and demonstrations.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street, W. Special course in the Diagnosis and Treatment of Common Diseases of the Nervous System. Lecture-demonstrations at 5 P.M. throughout the week.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, Jan. 18th.—4.30 P.M., Prof. Hugh MacLean: Diabetes and Insulin in General Practice.
TUESDAY.—4.30 P.M., Dr. Frederic Thomson: Recent Advances in Scarlet Fever and Diphtheria.
WEDNESDAY.—4.30 P.M., Dr. P. Manson-Bahr: The Treatment of Dysentery.
THURSDAY.—4.30 P.M., Mr. W. E. Tanner: Chronic Abdominal Pain.
FRIDAY.—4.30 P.M., Dr. L. R. Yealland: Hysterical Fits.
Daily, 10.30 A.M. to 1 P.M., Demonstrations of Clinical Methods. 2 P.M., to 4 P.M., Groups of Selected Cases and General Hospital Work.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.
TUESDAY, Jan. 19th.—5 P.M., *Dr. Knowsley Sibley*: Electro-therapeutics.
THURSDAY.—5 P.M., Pathological Demonstration.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.
WEDNESDAY, Jan. 20th.—5.30 P.M., Mr. A. L. Packham: Mouth-breathing.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.
WEDNESDAY, Jan. 20th.—Dr. Harrison: The Tests of Renal Efficiency.
THURSDAY.—4 P.M., Dr. D. Paterson: Constipation and its Management.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone-road, N.W.
THURSDAY, Jan. 21st.—5 P.M., Mr. J. B. Banister: Late Manifestations of Puerperal Sepsis.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn road, W.C.
*FRIDAY, Jan. 22nd.*—4 P.M., Mr. Armour Brown: Lateral Sinus Thrombosis.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE.
FRIDAY, Jan. 22nd.—4.30 P.M. (at Whitworth-street West Branch), Dr. W. Fletcher Shaw: Urinary Symptoms in Women.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINIC.
FRIDAY, Jan. 22nd.—3.30 P.M. (at the Royal Hospital), Dr. Skinner: Clinical Examination of Neurological Cases.

## Appointments.

INGRAM, J. T., M.D., B.S. Lond., has been appointed Pathologist to St. John's Hospital for Diseases of the Skin, Leicester-square.

SHERIDAN, MAY, M.B. Liverp., Assistant School Medical Officer for the County of Cheshire.

Certifying Surgeons under the Factory and Workshop Acts: PRESTON, J. A., M.D. Brux., L.R.C.P. Lond., M.R.C.S. (Oxted); JOLLY, G. A., M.B., Ch.B. Edin. (Orkney); and ARCHIBALD, A., M.B., Ch.B. Edin. (Renfrew).

Edinburgh Royal Maternity and Simpson Memorial Hospital: FERGUSON, J. H., M.B., C.M. Edin., F.R.C.P., F.R.C.S. Edin., and WATSON, B. P., M.D., F.R.C.S. Edin., Physicians.

# Vacancies.

*For further information refer to the advertisement columns.*

*Barnsley County Borough.*—Asst. M.O.H., &c. £600.
*Birmingham, Queen's Hospital.*—Hon. P.
*Bradford Children's Hospital.*—H.S. £100.
*Bradford Royal Infirmary.*—Two H.S.'s. Each £150.
*Bridge of Weir, near Glasgow, Consumption Sanatorium for Scotland Colony for Epileptics.*—Res. Lab. Worker.
*Burnley, Victoria Hospital.*—H.S. £180.
*City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.*—H.P. At rate of £100.
*Colombo Municipality, Ceylon.*—Jun. Asst. M.O.H. Rs.7200.
*Derby County Borough.*—Asst. M.O. £600.
*Dundee Royal Infirmary.*—Hon. Asst. Ophth. S.
*Edinburgh, Elsie Inglis Memorial Maternity Hospital, Spring Gardens, Edinburgh.*—Jun. Hon. Obstet. S.
*Edinburgh, Royal Infirmary.*—Two Asst. M.O.'s. £450 and £350 respectively.
*Elizabeth Garrett Anderson Hospital, Euston-road, N.W.*—Asst. Pathologist. £150
*Evelina Hospital for Children, Southwark, S.E.*—H.P. At rate of £120.
*Guy's Hospital.*—Phys. for Psychological Med.
*Hospital for Sick Children, Great Ormond-street, W.C.*—Res. Med. Supt. £300.
*Ilford Urban District Council.*—Chief Asst. M.O.H. £700.
*Leeds Public Dispensary.*—Sen. Res. M.O. £200.
*Lincoln County Hospital.*—Sen. H.S. At rate of £200.
*Liverpool, Royal Southern Hospital.*—Anæsthetist. £50.
*Manchester, Ancoats Hospital.*—H.P. At rate of £100.
*Manchester Committee on Cancer.*—Special Investigation Officer. £600.
*Metropolitan Hospital, Kingsland-road, E.*—Asst. P.
*Middlesex County Council Sanatorium, Harefield.*—Third Asst. Res. M.O. £400.
*Mount Vernon Hospital, Northwood, Middlesex.* — Hon. Anæsthetist.
*Oswestry, Shropshire Orthopædic Hospital.*—H.S. £200.
*Perth, James Murray's Royal Asylum.*—Asst. P. £300.
*Royal Chest Hospital, City-road, E.C.*— Cln. Assts.
*Shanghai Municipal Council, Public Health Dept.*—Asst. Health O. Tls.700 per mensem.
*Southport Convalescent Hospital and Sea-Bathing Infirmary.*—Res. Med. Supt. £600.
*Stafford, Staffordshire General Infirmary.*—H.S. At rate of £200.
*Sudan Medical Service.*—Four M.O.'s £E.720.
*Ventnor, Isle of Wight, Royal National Hospital for Consumption and Dis. of Chest.*—Jun. Res. M.O. At rate of £250.
*Windsor, King Edward VII. Hospital.*—Hon. Asst. Ophth. S.
*Wolverhampton and Staffordshire Hospital.*—H.S. At rate of £15.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments for Certifying Factory Surgeons: Nailsea, Somerset; Southend, Essex; and Yarmouth, Isle of Wight.

# Births, Marriages, and Deaths.

## BIRTHS.

BEWLEY.—On Jan. 9th, at Courtfield-road, Kensington, the wife of Dr. Bewley, of a daughter.

CHAPMAN.—On Jan. 6th, the wife of R. D. Chapman, L.D.S., of Welbeck-street, W., of a son.

KEARNEY.—On Jan. 4th, the wife of Dr. Kearney, Eppingdale, Leytonstone-road, Stratford, of a son.

MAITLAND.—On Jan. 8th, at Golders Green, the wife of Charles Titterton Maitland, M.D., M.R.C.P., of a daughter.

RAINER.—On Sunday, Jan. 3rd, at "Shirlands," Herne Hill, S.E. 24, Kathleen, the wife of Dr. Charles Farrell Rainer, —a son.

TAYLOR.—On Dec. 31st, 1925, at Cannes, the wife of Major D. M. Taylor, I.M.S., of a daughter.

## DEATHS.

ANDREW.—On Sept. 21st, 1925, at Rangoon, Charles Todd Andrew, B.Sc., M.B., Ch.B., Surgeon on s.s. Lancashire, aged 46.

ATKINS.—On Jan. 1st, at Handley, Salisbury, Francis Robert Lowth Atkins, M.R.C.S., L.R.C.P., of Burford, Oxon., aged 41.

BOWEN.—On Jan. 4th, at Swilly House, Plymouth, Fleet Surgeon A. G. W. Bowen, R.N. (retd.), aged 62.

DAVIES.—On Jan. 3rd, at Hurtmore Croft, Godalming, Francis Joseph Davies, F.R.C.S. (late of Abercarn, Mon.), aged 74.

GIFFARD.—On Jan. 5th, of heart failure, Major-General Sir Gerald Godfray Giffard, K.C.I.E., C.S.I., I.M.S. (retd.).

JONES.—On Dec. 22nd, 1925, at 19, Paget-street, Cardiff, David Rhys Jones, L.R.F.P.S., L.S.A., aged 80.

MACKENZIE.—On Jan. 7th, at Santa Margherita, Ligure, Dr. H. M. MacKenzie, aged 56.

ROBERTS.—On Jan. 8th, suddenly, at Claremont-hill, Shrewsbury, Alfred Dean Roberts, M.R.C.S., L.R.C.P., aged 58.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## LEGISLATIVE MEASURES FOR THE CONTROL OF ALCOHOL AND DRUG ADDICTS.[1]

BY F. S. D. HOGG, M.R.C.S. ENG.,
MEDICAL SUPERINTENDENT, DALRYMPLE HOME FOR INEBRIATES.

NEARLY all civilised countries have laws regulating or restricting liquor traffic and the sale of habit-forming drugs. With regard to alcohol some merely legislate for the issue of licences, for the hours of sale of liquor, and for the penalties incurred by breach of the conditions laid down. Others have adopted State or local prohibition.

In many countries, however, there are laws the object of which is by punishment, or other means, to restrain, control and attempt to cure, the chronic or periodic drunkard or the drug addict. These statutes may be classified as follows: (1) Penal measures regulating punishment by fine or short term of imprisonment. (2) Control in penal establishments for lengthened periods. (3) Interdiction—i.e., laws prohibiting the sale of liquor to drunkards. (4) Guardianship Acts regulating the appointment of curators or guardians endowed with legal power over the estate (or the person) of an inebriate, or both. (5) Control in institutions or homes, with a view to reformative treatment: (*a*) for the inebriate who makes voluntary application for admission; (*b*) for the inebriate who is a police-court recidivist, or who has committed offences caused or contributed to by drink or drugs; (*c*) for the inebriate who refuses control and manages to keep out of the reach of the law.

Penal measures range from small fines to terms of imprisonment for varying periods. In New South Wales, Natal, and Kenya the maximum penalty is six months; in the Cape of Good Hope and Massachusetts it is 12 months; whilst in Michigan and Germany it is two years—which is the extreme penalty that may be inflicted in this country for being in possession of habit-forming drugs. In Germany they have a utilitarian method of dealing with habitual drunkards, for "whoever gives himself up to drink to such an extent that he cannot support himself or those for whom he is bound to provide" is subject to the maximum term (two years) in the workhouse or in employment on works of public usefulness.

### *Interdiction.*

Interdiction appears to be regarded with favour in many parts of the world. The usual type of interdicting legislation provides that any person who by the excessive drinking of liquor mis-spends, wastes or lessens his estate, or greatly injures his health, or endangers or interrupts the peace and happiness of his family, may be proceeded against and prohibited from obtaining liquor. His name is given to the various vendors of drink, who are liable to punishment, as are any other persons who supply him with liquor. The period of interdiction varies. It may be for a fixed period, or it may depend, as in Queensland, upon the opinion of magistrates. Or, as in Manitoba and elsewhere, the interdicted may have to prove that he has been sober for a certain number of months. Whilst this method is, no doubt, of value in sparsely populated countries or in small communities, such as Guernsey, it is unworkable in thickly populated areas. The inebriate may be well known in the vicinity of his abode, but a short excursion into adjacent territory will generally relieve him of this incubus.

The Drunkards Act of 1911 of British Columbia carries interdiction a step further. Upon the written request of husband or wife, or any blood relation, a petition may be filed in the Supreme Court praying that an habitual drunkard may be interdicted. If the person be found to be an habitual drunkard, and unable to manage his affairs, he is treated as a minor and someone is appointed to manage his affairs. The interdicted one may regain his legal rights when he can prove that he has refrained from drunkenness for 12 months. The names of interdicted persons are open to public inspection, and any contract, bargain, sale, or business transacted with an interdicted individual is held to be void. This is a form of guardianship.

Sweden has a system peculiar to itself, which was made familiar in this country under the name of the Gothenburg System. The Bratt System, by which name the plan is now known, is a development on national lines of the system which was inaugurated in Gothenburg in 1860. The Bratt System received legislative sanction and support in 1917. Under this scheme the liquor traffic, both wholesale and retail, is under the control of companies who ration the individual consumer and exercise constant and strict supervision over the purchases of their clients, taking away the right to purchase from those who abuse that right. Ration or pass-books, which resemble cheque-books, are not issued to persons who are found guilty of drunkenness or certain crimes and misdemeanours. The rationing applies only to spirits and heavy wines, all persons being at liberty to purchase ad lib. the national light beers and wines—which are very light indeed when compared with those consumed in this country. It is claimed that the system has during the last ten years reduced the consumption of strong alcoholic drinks by 50 per cent., and had a proportionate effect in the reduction of sentences for drunkenness, while the alcohol addicts admitted to the central hospital for habitual drunkards fell from 581 in 1913 to 211 in 1923.

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[1] Being an abstract of a paper read to the Society for the Study of Inebriety on Jan. 12th, 1926.

In some parts of Germany, Austria, Switzerland, Australia, Canada, and the United States, and in Tasmania, Jersey, and France, inebriates, in certain circumstances, can be placed, as if they were minors or insane, for their own benefit and for that of those dependent on them, under the care of a guardian, trustee, or curator. The power has the effect of deprivation of civil rights, of control and management of property, and in some cases of the inebriate's control over his own person. In some countries a guardian can be appointed when there is alcohol or drug excess only, in others when there have been more than three convictions of drunkenness during the year, or other offences accompanying alcoholism. In others it has to be demonstrated, in addition, that the person is a spendthrift, is wasting his estate, or is unfit to manage his affairs.

### *Control in Institutions or Homes.*

In many parts of the world there are statutes under which inebriates may place themselves voluntarily under control and treatment. In most instances the definition of an inebriate includes both alcohol and drug addicts. In Great Britain we have in addition to fines and short terms of imprisonment for drunkenness in public, or other offences, the power given to a court to inflict severe sentences of fines up to £200 and six months' imprisonment for a first offence, and £500 and two years' imprisonment for being a second time in illegal possession of certain habit-forming drugs.

The Dangerous Drugs Act has, so far as I am able to judge by the greatly reduced number of applications which I receive for the admission of drug cases, been productive of good. The few applications I have received during recent years have been nearly all from those who have daily access to such drugs—i.e., doctors, dentists, and chemists. It is for many addicts a prohibition law and allows the control of the person (in prison) who breaks the law. Interdiction (the "Black List") under the Licensing Act, 1902, is practically a dead letter. Our country is too crowded for this measure to be of real value. Under the Inebriates Acts, 1879–1900, we have control in retreats for the inebriate who makes voluntary application for admission. Any person desirous of admission to an inebriate retreat is required by this Act to sign a request for reception in schedule form before a justice of the peace. Such request must be for a definite period, not exceeding two years, to be named in the application. Two relatives or friends, of either sex, of the applicant must also sign a statutory declaration before a justice or a commissioner for oaths, to the effect that the applicant for admission is an inebriate within the meaning of the Acts. The definition runs as follows: "An 'habitual drunkard' is defined in the Act of 1879 as meaning a person who is, by reason of habitual intemperate drinking of intoxicating liquor, at times dangerous to himself or herself or others, or incapable of managing himself or herself, and his or her affairs. It will be noted that there is no reference to drug addiction, but a note was issued from the Home Office to the effect that 'intoxicating liquor' may include liquors other than alcohol, if their habitual intemperate use brings the consumer into the condition of an 'habitual drunkard.'" The intending patient must then voluntarily enter the retreat premises, where he may be detained until the expiration of the period for which he has signed. Should he escape at any time during the period of legal detention, a warrant may be issued for his apprehension and remission to the retreat. But he may be discharged before the completion of the period for which he has signed if such a course is considered advisable for various reasons; for instance, because further treatment is unnecessary, for urgent private affairs, or for ill-health. Or he may be allowed to leave the retreat on leave of absence and to complete—so long as he abstains from intoxicants—his period at home or elsewhere. I frequently advise intending applicants for admission to sign for the maximum period (two years) in order that they may have a long period of some control on leave of absence.

The alcohol or drug addict will often bargain that he is to be a free agent and arbiter of the duration of his treatment. Undoubtedly in some cases it is better to let him be a free party to his reformation, for ultimately it must rest with him to continue to abstain and to fight any inclination or temptation to relapse; but in other cases this liberty of action is inadvisable. Patients may be anxious to get back to ordinary life; or they may feel so fit after a brief treatment that they feel fully able to face the world and its temptations. Their treatment is cut short, and too frequently disaster follows. It is in guarding against some of these types that voluntary control under the Act is helpful. It is also advantageous for the relative or friend of the addict, who puts up money for his treatment.

In addition to voluntary control there exists under the Act power to control in State inebriate reformatories or certified inebriate reformatories those inebriates who commit certain offences against the law. At the present time, however, partly owing to economical reasons and because reformatories are filled up with border-land cases and mental deficients and other hopelessly incurable persons, and partly owing to the doubtful wording of the Act and the misinterpretation of its provisions by magistrates, there are no such institutions to which law-breaking inebriates can be sent. We have no guardianship laws for inebriates, nor have we any compulsory control of addicts who do not get "run-in" frequently or do not break laws.

### *Control in Great Britain.*

For the benefit of those who refuse treatment enforced control is the only practical remedy. And in those cases where immediate action is desirable, it should be possible to obtain an urgency order of detention.

Sir William Willcox pointed out in 1923 that special institutions and staffs would be required for the treatment of large numbers of cases; that these do not exist in this country, and that provision for them would be necessary before any legal enforcement for compulsory treatment were enacted. Doubtless the Government would not pass a measure of the sort if it could not see its way to providing the required institutions, but there would not be the same objection to the addition of a clause to the Inebriates Act, allowing the appointment of a guardian to control the person and estates of inebriates who are wasting their possessions and exposing their families to future destitution.

There was presented to the House of Commons in 1913, by Mr. Ellis Griffith, a well-considered Bill to repeal and replace the present Inebriates Act. This contained clauses (a) to allow a person to enter into an undertaking to abstain from intoxicants for a period not less than one year; or (b) to submit himself and the control of his person, for a period not exceeding one year, to the guardianship of a guardian who could prescribe a place of residence and who could prevent him obtaining intoxicants. A failure in the former case involved liability to committal to a retreat; in the latter it involved the appointment of a judicial guardian; or (c) to apply for admission to a retreat. (d) To allow the judicial authority power in certain circumstances to grant a compulsory order of committal to a retreat at request of guardian, relative, or friend. (e) To allow a compulsory order for the appointment of a judicial guardian and of maintenance out of the estate of the inebriate, of dependent persons. These proceedings could be held in private.

The Bill also contained provisions as to inebriates guilty of offences and the definition of "inebriate" included drug addicts. This Bill was, unfortunately, shelved owing to the outbreak of war. The clauses I have referred to were recommendations contained in the Report of a Departmental Committee appointed in 1898 to inquire into the operation of the law relating to inebriates and their detention in reformatories and retreats. An article on this report appeared in THE LANCET of Jan. 30th, 1909.

I think that nearly all, if not all, who have been brought into intimate contact with inebriates are far from content with the measures we possess in this country for dealing with them. Great Britain lags behind her colonies and other countries in not legislating for the control of the non-criminal addict, and therefore in not giving relief to unfortunate wives, husbands, children, and other relations.

I wish to acknowledge my great indebtedness to Dr. R. Welsh Branthwaite, H.M. Inspector under the Inebriates Act, for information and assistance, and also to numerous gentlemen in all parts of the world who have courteously responded to my requests for information.

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## WEBSTER'S ROYAL RED BOOK.

THE new (267th) edition of Webster's Royal Red Book (London: A. Webster and Co., pp. 736, 7s. 6d.) has reached us. The statement on the front page that the work is corrected up to the latest moment before going to press is confirmed by internal evidence. The main content of this useful volume is an alphabetical list and a street list of the "nobility and gentry" occupying houses in London. Business firms, clubs, societies, and institutions are included, also lists of the personnel of Government offices and of the Houses of Parliament. Theatre plans conclude a handy and serviceable book.

## THE CONTROL OF TINEA CRURIS IN SCHOOLS.

IN 1922 Dr. Norman Hallows contributed an article to our columns[1] on the Control of Tinea Cruris (eczema marginatum, tinea marginatum, or dhobie itch). Correspondence followed, in which the late Dr. Clement Dukes[2] (Rugby) described how he had been led to try chrysarobin treatment, and later we published an article by Dr. Arthur Whitfield[3] on the Treatment of Ringworm in which tinea cruris was considered. In 1925 the Headmasters' Conference invited representatives of the Medical Officers of Schools Association to suggest measures for dealing with this widespread nuisance of schools, and Dr. L. R. Lempriere (Haileybury), Dr. Norman Hallows (Marlborough), and Dr. A. I. Simey (Rugby) were appointed to draw up recommendations. We publish the substance of these recommendations below.

Tinea cruris is probably spread by dust and by infected towels and garments. It is certainly much more prevalent in the community at large than is generally supposed, and although it chiefly affects the groins, armpits, and toes, it may, if neglected, appear elsewhere on the body.

To prevent fresh cases being imported at the beginning of the term the medical officer should have permission at his discretion to examine all boys in the senior houses when the term opens, and at such other times as circumstances warrant. The coöperation of boys and parents should be sought, and boys should be instructed to report redness and/or irritation of the thigh. Neglect to do so should be regarded as a serious offence against the community. Changing-rooms, drying-rooms, and lavatories should be adequate for their purpose, and every care should be exercised to ensure cleanliness and tidiness after use. Laundry arrangements of the school must be entirely satisfactory from a hygienic point of view. The danger of infection would be greatly decreased if (1) pants were worn with cloth clothes throughout the year, and if (2) where serge shorts are used, bathing drawers were worn underneath them. O.T.C. uniforms should be disinfected whenever their ownership is changed. Studies should be kept tidy and overcrowding avoided, and curtains, hangings, and draperies should be discouraged. Boots, flannels, uniform, and toilet articles should not be kept in studies, and any floor coverings used in dormitories ought to be removed and washed periodically.

A period of isolation accompanied by adequate disinfection is an essential part of treatment in every case, and in order that this may be as short as possible, the treatment hereafter described should be followed.

The leaflet accompanying these recommendations is to this effect:—

1. The naked-eye appearance of tinea cruris is usually so characteristic that a diagnosis can be made without microscopic examination. The fungus is not always easy to detect even in obvious cases of the disease, but experience shows that the very large majority of rashes in the groin area in schoolboys are due to infection by it. The whole surface of the body, especially the axillæ and internatal cleft, should be carefully examined to determine the extent of the disease at the outset.

2. The case should be isolated at once and kept in bed during sanatorium or bedroom treatment.

3. For at least six days apply thickly-spread dressings of either ung. chrysarobini B.P. or ung. ararobæ B.P.C. once daily and retain them in position by means of bandages or bathing-drawers, or else use liberal inunctions of the same twice daily. Where only one thigh is found to be infected both must be treated. It is essential to use a reliable and active sample of the ointment; that supplied by the General Apothecaries Co. has been found uniformly good.

4. During the period of treatment in bed the patient should be examined daily.

5. At the end of this period, provided that the applications have been adequate, it will be found that the central infected area has become smooth and pale with a surrounding red line and erythematous band at the junction of the infected and normal skin.

6. When a satisfactory result has been obtained the patient should have a hot bath and wash the affected area thoroughly with soap. (Baths are not advised during the period of treatment.) Clean disinfected clothing is then put on and the patient may then be discharged as free from infection.

7. As an additional precaution after discharge ung. ac. benzoici co. B.P.C. should be applied daily to the affected parts for from two to three weeks.

8. It is advisable that boys, after the course of chrysarobin treatment, should be inspected at weekly intervals and should report to the medical officer on return to school.

9. Disinfection is an essential part of the treatment, and should this be inadequate reinfection is almost certain to occur. Towels and all articles of clothing and bedding which may have come in contact with the infection should be either boiled or treated in a steam disinfector.

10. Desquamation between the toes should be carefully treated whenever it exists, either with the ointments above mentioned or by painting with tinct. iodi fort.

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[1] THE LANCET, 1922, ii., 791.
[2] Ibid., 1922, ii., 833 and 883.
[3] Ibid., 1923, i., 1125.

## RECURRENT PIN-HEAD PUSTULATION.

*To the Editor of* THE LANCET.

SIR,—I shall be grateful for the advice of your readers on the treatment of the following case. Recurrent pin-head pustulation of the chin in a man aged 51. The condition has been troublesome for more than 30 years. There appears to be nothing relevant in family or personal history. Patient has had slight acid dyspepsia from childhood. The skin on the chin is the only part of skin affected—that over other areas is quite clear and normal. There is no seborrhœa of scalp; teeth and mouth healthy; skin fairly free from comedones. The small pustules arise very quickly, sometimes 8 to 12 or more appearing in a morning when there was none the previous day, but only very small foregoing papules. Varied treatment has been tried from time to time, but none has been successful—e.g., externally: sulphur, ã salicyl., preparations of mercury—all these in forms of lotion and ointments; lot. calamin co., ung. resorcin, iodex, lot. calc. sulph., pulv. ã boric c ã salicyl., 5 per cent.; internally: iron, arsen., sulphur, synthetic preps. of garlic, alkalies, aperients.

I am, Sir, yours faithfully,

West Africa, Dec. 7th, 1925. ACNE.

## MATERNITY AND CHILD WELFARE PROBLEMS.

A REPORT[1] has just appeared of the lectures and round-table talks at the Baby Week Summer School held last July. The two main subjects discussed were the Formation of Character and Maternal Mortality and Morbidity in Childbirth, and in both sections the council was happy in having experts for speakers. Under the first heading various phases of psychology were dealt with, the lecturers including Prof. William Brown, Dr. J. A. Hadfield, Dr. Eric Pritchard, Dr. M. D. Eder, and Dr. A. F. Tredgold, whose paper on the abnormal child was a particularly valuable contribution, dealing clearly and concisely with abnormality in regard to (1) instincts, (2) feelings, (3) intellect, (4) intelligence. One or two striking definitions were given, as when Dr. Hadfield said, "By temperament we mean the influence of the *bodily* condition upon the mind," or Prof. Brown, "Disease in general, whether physical or mental, is disorder which, originally functional, may become so pronounced as to cause structural change, which may be established in the course of successive generations." In the discussion on maternal mortality, it may be noted that medical men and women of such varied experience as Sir Arthur Newsholme, Dame Janet Campbell, Dr. A. E. Giles, Dr. Mabel Brodie, Dr. R. A. Lyster, Prof. E. W. Hope, and Dr. H. K. Waller, without exception spoke in favour of maternity homes or some sort of institutional facilities for childbirth. Dr. Brodie wished especially to see more provision for complicated cases during pregnancy, and Dame Janet Campbell spoke of the desire of the Ministry of Health that cases of puerperal fever should be cared for in a small number of institutions where they would have the advice of skilled obstetricians. This has since been carried into effect in London by the setting apart of quarters in three of the Metropolitan Asylums Board Hospitals for the purpose. The general standard of the papers read at the school was high, and the National Baby Week Council has rendered a useful service in publishing them in cheap and compact form.

*Bacid Morgenstern.*—Messrs. E. H. Spicer and Co. inform us that this preparation (noticed in THE LANCET of Jan. 2nd, p. 24) is in future to be known as "B. Acidophilus Emulsion (Morgenstern)," under which name it has been admitted to the American "List of New and Non-Official Remedies."

*Longevity and Fertility.*—Mr. Robert Barr, of Magill, a suburb of Adelaide, who has recently celebrated his ninety-third birthday, went to South Australia in 1874 with his wife and ten children, nine of whom are still living. He is enjoying good health and has at present 68 grandchildren and 141 great-grandchildren.

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[1] Published by the National Baby Week Council, London, 1925. Pp. 77. 1s.

# An Address

ON THE

# MAJOR PROBLEM OF PUERPERAL SEPSIS.

*Delivered on Dec. 10th, 1925, before the Windsor and District Medical Society*

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THE subject of the prevention of puerperal sepsis is of constant interest because, sooner or later, the majority of medical men come face to face with the disease At intervals this interest is exacerbated by the written or spoken pronouncements of some obstetrical authority, and a series of letters appear in one of the medical journals written by correspondents mostly holding different views. Meantime the disease remains with us, not greatly diminished in frequency for the last 50 years in spite of a great deal of not entirely unacrimonious discussion. This is the outstanding fact, the failure to explain which keeps professional interest in the subject always simmering.

We know that puerperal sepsis is due to infection of the placental site and that the organism most frequently found is a streptococcus belonging to the hæmolytic group and most often identical with *S. pyogenes*. The question is, how did it get there?

### EXTRINSIC INFECTION.

The conveyance of organisms from individual to individual is the most easily understood method of producing sepsis, and as such was naturally the first to be discovered. As regards puerperal fever, Charles White, of Manchester, first of all, and Semmelweiss after him, recognised that the epidemics that ravaged lying in hospitals were due to infection of the recently delivered woman from an outside source, although they were ignorant of the exact nature of the infection. The discoveries of Lister made clear that the infection was organismal, but the idea that the source of the infection was invariably an extrinsic one was maintained for many years after, and is only to-day being superseded by a wider view. There is no wonder in this, for Lister himself at first regarded wound infection as being almost entirely of extrinsic origin and chiefly air-borne. Increasing knowledge showed that in certain kinds of wound infection the organisms did not originate from without but were resident in the individual before the receipt of the wound. This was recognised in general surgical practice much sooner than in obstetric work, because the surgeon is frequently called upon to operate on tissues or surfaces obviously infected or even inflamed before he makes his wound, whereas the obstetrician works through a canal which, together with its approaches, usually appears healthy although it may in reality be gravely infected. So soon as surgeons began to frequently operate on the intestine, the throat, the nose, or other heavily infected surfaces, it became clear that the original antiseptic technique of Lister, which had for its object the prevention of extrinsic infection, was inadequate to prevent the wounds going wrong, since they became infected from the organisms already present in the part. Surgical technique has, therefore, been modified to meet this second source of infection as well, but the problem it presents is far more difficult of solution than that presented by the earlier recognised extrinsic infection, and, indeed, is only partly solved at the present day.

The maintenance of belief in extrinsic infection as the chief cause of puerperal sepsis is largely due to the dramatically rapid disappearance of the disease in its epidemic form, which at once followed the application of the Listerian principles to obstetrics. Such epidemics were certainly due to extrinsic infection, but that the patients so infected only formed a small proportion of the total number of cases of puerperal sepsis is obvious from the fact that, in spite of the abolition of epidemics, the yearly total of cases in the country has diminished relatively little in spite of the general employment of antiseptic measures—rubber gloves, for example—quite sufficient to make extrinsic infection extremely unlikely, if not to rule it out altogether. The finding of the specific cure of any disease or condition is immediately followed by unmistakable and striking results. The discovery of extrinsic organismal infection and the antiseptic measures for preventing it at once transformed surgery, because before Lister's day the majority of surgical cases "went wrong" because of extrinsic infection. Take, for instance, the operation of opening the knee-joint, which before Lister's time was almost uniformly fatal and now is performed with impunity Infection of surgical wounds still occurs, of course, though with much lessened frequency, because although extrinsic infection has been rendered very unlikely the safeguards against intrinsic infection still leave much to be desired, and there are certain operations (e g, on the bowel) in which this variety of infection is the chief danger. In obstetric work, on the other hand, no such striking transformation has occurred, for the reason that extrinsic infection, even in pre-Listerian days, was of far lesser frequency than intrinsic infection, and therefore an anti sepsis, primarily intended to guard against the former manner of infection, and against it alone, has relatively failed.

### INTRINSIC INFECTION.

Every human body harbours on or in it enough organisms of potential virulence to fatally infect a wound of that body, given that the initial organismal implantation be in sufficient numbers to overcome the resistance of the tissues in the area of implantation. In puerperal sepsis the attacking organism is usually a streptococcus, and the wound infected is the placental site, and as it is certain that the uterus before labour is, as a rule, sterile of organisms, the streptococci must, as a rule, infect the placental site during or after the labour. Bond showed that minute particles placed in the upper vagina found their way unassisted into the uterus and tubes, and this has been confirmed by Everard Williams and Russell Reynolds,[1] who also found that in animals at all events previous artificial closure of the abdominal ostia prevented the particles from ascending. He suggested that the agency of ascent was an aspirating action from the peritoneal cavity. It would appear almost certain, then, that during the early puerperium, when the uterine cavity is open to the vagina and so soon as the tubes have regained continuity with the uterine cavity,[2] organisms from the lower canal must frequently find their way upwards.

That streptococci are frequent inhabitants of the vagina in apparently normal pregnant women is not now in dispute. Lockhart,[3] whose very fine paper should be studied in this connexion, found them in 48 per cent. of the cases he investigated, and FitzGibbon and Bigger[4] in 68 per cent.

If this were all, the problem of puerperal infection would lie in explaining, not how infection of the placental site occurred, but why it occurred so seldom. It is, however, not all; research shows that the streptococci inhabiting the vagina before delivery are rarely hæmolytic, whilst those found in the uterus in puerperal sepsis most commonly are hæmolytic. Moreover, when hæmolytic streptococci are found in the vagina before labour they are very rarely of the variety *S. pyogenes*, which is the organism chiefly found in puerperal sepsis. That non-hæmolytic streptococci can occasion puerperal sepsis is, however, certain, for in a minor proportion of the cases they are the only organisms found in the uterus. Thus FitzGibbon and Bigger[4] found that, out of 47 septic cases from which they isolated streptococci, there were eight in which the organisms were non-hæmolytic, and of these four died. The capacity of non-hæmolytic streptococci to produce severe inflammation is, moreover, proved by the bacteriology of acute appendicitis. Dudgeon and Mitchiner,[5] from 27 cases isolated streptococci 19 times, and of these, in no less than 18 the organism was non-hæmolytic. The fact that, in puerperal sepsis, the bulk of the streptococci found are hæmolytic is regarded by some as proving the origin of the disease to be commonly extrinsic, but no such conclusion should be drawn, for it is to be remembered that as a differentiator between virulent (usually hæmolytic) and non-virulent (usually non-hæmolytic) streptococci the uterus is an infinitely more delicate selective culture medium than anything that has yet been produced in a laboratory. Given that of various streptococci gaining access to the placental site, only one in a thousand was virulent and hæmolytic, in 24 hours it would become the predominant organism, although in laboratory cultures taken before the septic proliferation had begun it would be undetectable, being overgrown by the much more numerous avirulent non-hæmolytic organisms. Lockhart's remarks in this connexion should be studied. Moreover, although the experimental transformation of non-hæmolytic into hæmolytic streptococci has only occasionally been successful in the laboratory, it is not certain that it does not occur in the septic puerperal uterus. On this matter Lockhart's observations are again very illuminating. Of 48 women from whose vaginæ streptococci were isolated before the labour, 18·7 per cent. developed pyrexia after the labour, although the organisms found before labour were hæmolytic in one case only; whilst of 52 women whose vaginæ did not contain streptococci before labour only 1·9 per cent. developed pyrexia after their labour. Hæmolytic streptococci were found in abundance in the vaginæ of four of the puerperal women from whom non-hæmolytics alone had been isolated before labour, their appearance coinciding with the onset of post-partum pyrexia. It can be argued that these had probably been introduced during or subsequent to the labour, but it is certainly possible that they derived from hæmolytics present in too small a number before labour to be detected, or were the result of the conversion of the non-hæmolytics then discovered.

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[1] Brit. Med. Jour., April 11th, 1925.

[2] The question how soon after delivery communication between the tubes and the uterine cavity is effected after delivery needs answering if the ascent of particles from the vagina into the uterus is due to aspiration from the peritoneal cavity.

[3] Brit. Jour. of Obst. and Gyn., vol. xxxii., No. 1.

[4] Ibid., vol. xxxii., No. 2.

Given, then, that the causative organism is resident in the woman before labour, it will be manifest that there are two manners of infection of the placental site, "autogenous" intrinsic infection and "conveyed" intrinsic infection.

### Autogenous Intrinsic Infection.

Intrinsic infection can only be called "autogenous" when the septic organisms attain the placental site unaided by manipulation or instrumentation. There are two possible ways in which they may do this: (1) Organisms resident in the upper vagina may ascend into the uterus during or subsequent to the labour. (2) They may be transplanted there by the blood-stream before, during, or after labour.

*Spontaneous Organismal Ascent.*—(1) That organisms in certain number do ascend into the uterus during the puerperium seems undoubted. That they do not commonly produce sepsis can be explained by the facts that (*a*) they are usually of low virulence, (*b*) that blood (the lochia) possesses bactericidal powers, and (*c*) that the tissues of the placental site are more or less resistant. Autogenous organismal ascent is best of all demonstrated by the much increased likelihood of sepsis which accompanies Cæsarean section when it is performed after the membranes have ruptured and the uterine cavity is in free communication with the vagina, even in cases in which there has been no intra-vaginal manipulation beforehand and in which vigorous methods have been taken to sterilise the vagina before opening the uterus. It must be admitted that, when sepsis follows Cæsarean section, it does not, as a rule, exhibit the typical clinical features of virulent "puerperal fever," but this is not surprising firstly because the chances are against very virulent organisms being present in the vagina, so that the infection would be, as a rule, of relatively low intensity, and secondly because the surgeon's wound in the uterus, with its many foreign-body sutures, probably offers far less resistance to organismal invasion than the placental site. It is certain that, in the majority of cases of Cæsarean section gone septic, the symptoms suggest that the main area of infection is the uterine and abdominal wounds and not the placental site, though I have seen typical "puerperal fever" follow the operation.

There are individuals who are habitually infected with streptococci, the organisms residing either in their nasal sinuses, gums, tonsils, urinary tract, or intestine, or in several of these sites coincidently. Certain of these persons may be described as suffering from generalised streptococcosis, and in them the body resistance to this organism is probably abnormally low. Any injury is likely to go hard with such an individual, birth injury included.

Streptococcal vaginitis of non-venereal origin is a condition very commonly met with, not only in married women of all ages, but also in virgins. The source of the infection is probably intestinal in most cases, and from many of these patients streptococci can be recovered from the urine as well, whilst in others it is obviously only one manifestation of a generalised streptococcosis. It is a most intractable type of infection, and may continue for years in spite of vigorous treatment, a fact which suggests that reinfection is continually occurring, as it would do if the primary source was in the intestinal tract and this remained untreated. If a woman with streptococcal vaginitis becomes pregnant the probability is that the organisms will ascend into the uterus after the labour, where they may or may not produce symptoms according as the resisting power of the placental site be high or low. In this connexion I will quote a case which exemplifies the views I am putting forward. The patient was a young woman whom I was called in to see on account of puerperal fever which had followed in two days a normal and entirely uninterfered-with labour, the child and placenta having been born before the doctor arrived. It was her third child, and I was informed that both her first and her second labours had been followed by high fever and signs of sepsis. On examining her I noticed that, although her teeth were perfect, her gums were purple and pulpy and showing marked recession. This condition was a sequela of scarlet fever at the age of 13, which had persisted in spite of every treatment except the removal of her teeth, to which she had resolutely objected. The attack of puerperal sepsis on this occasion proved fatal, and there can be no reasonable doubt that hers was a case in which extensive harbourage of virulent streptococci had existed for years, with consequent chronic infection of her intestinal tract and probably of her vaginal and urinary passages as well.

*Blood Infection of the Placental Site.*—That wounded tissue may become infected through the blood-stream is undoubted, and therefore the possibility of such happening to the placental site cannot be denied, especially in the case of a woman suffering from generalised streptococcosis. It must be remembered that the carriage of organisms by the blood appears to be a much commoner occurrence than was formerly believed to be the case; witness pyelitis in which the causative organisms almost certainly enter the kidney through the blood-stream. Nothing definite is known about blood-borne infection of the placental site and the subject has received little attention, but its occurrence would explain these occasional cases of puerperal sepsis in which the symptoms date from the very onset, or even precede, a perfectly normal and uninterfered-with labour. In a woman the subject of generalised streptococcosis the uterine wall before labour may conceivably contain streptococci.

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[4] Brit. Jour. of Surg., vol. xi.

*Conveyed Intrinsic Infection.*—Though intrinsic infection is undoubtedly at times autogenous, there are strong reasons for believing that, in the majority of cases, it is conveyed; that is to say, the septic organisms, though derived from the patient's own body, are transported into the upper vagina or the cavity of the uterus by the agency of hands or instruments. The source from which the organisms of conveyed intrinsic infection are most usually drawn is undoubtedly the bowel, whose organismal content is derived not merely from the stomach and intestine, but from the drainage of the nose, mouth, pharynx, and throat.

A consideration of the results which follow traumatic perforation of the gut or bruising or strangulation of its wall leaves one in no doubt that of the organisms present in the intestine many are potentially virulent, even in the most healthy person. Far from being easily tolerated by the tissues, they are, in fact, held within bounds by a fence of tissue resistance so delicate that the least injury to it is followed by an invasion more or less dangerous. Seeing the position of the vagina in relation to the rectum, the relative freedom from intestinal organisms of the former canal, when in perfect health and in the virgin state, is remarkable, though they are much more frequently found, especially towards its lower end, in the married and parous The approaches to the vagina —viz., the vulva and the perivulval and perianal skin—are always heavily infected with organisms derived from the bowel, and it is a bacteriological impossibility to pass anything into the vagina without carrying up some organisms from the outside. The character of the organismal infection thus effected will depend on the character of the bacterial content of the fæces, and this varies in different individuals. In the majority of persons *B. coli* is predominant, while streptococci are sparse and chiefly of the "fæcalis" group, but sometimes this proportion is reversed, *S. fæcalis* being abundant and *B. coli* sparse. In other persons again, *S viridans* or types allied to it are present in large numbers. This organism is of the type commonly found in the mouth. *S. pyogenes* is not commonly found in the bowel, but the technique for separating the various organisms present in a culture as mixed as the fæces is not yet perfect enough to always detect an organism present in small numbers. The fæcal organisms, as has been said, are derived not merely from the intestine but from the throat, nose, and mouth, and in infective states of these parts are passed down into the rectum. Pilot and Davis[6] and others have shown that hæmolytic streptococci are commonly present in the tonsil, while they are the organisms usually responsible for bronchitis and broncho-pneumonia. They are also present in pyorrhœa and in scarlet fever, though the variety in all these conditions differs in certain details from *S. pyogenes.* It is thus apparent that the infection of the vagina conveyed by the passage of something into it must be regarded in every case as potentially a virulent one.

The fact that *S pyogenes*, the commonest organism of severe puerperal fever, is apparently rarely present in cultures of the fæces has been held to prove that in the majority of the grave cases (those exhibiting *S. pyogenes*) the infection was not derived from this source. Closer consideration of the matter, however, shows that on the contrary the fact cited fits in very well with the view that they *are* so conveyed. For if *S. pyogenes* was constant in the fæces, then most women during their confinements would have it introduced into their vaginæ in the process of vaginal examination and severe puerperal sepsis should be very common indeed. That it occurs a great deal too often is admitted, but with nothing like the frequency postulated by the assumption. The proportion of deaths by puerperal sepsis in England and Wales at the present day may be taken at about 1 3 per 1000 live births, and it may be accepted as certain that the great proportion of those women die of streptococcal infection. The proportion of cases of hæmolytic infection (*S. pyogenes*) to those of non-hæmolytic infection (*S. viridans, S. fæcalis,* &c.) in severe puerperal fever may be taken in general as somewhere about 3 to 1, or 75 per cent (FitzGibbon and Bigger 70 per cent., Hauch 80 per cent.), and there is no reason to materially alter this estimate for the group of cases that die of the disease, for FitzGibbon's and Bigger's series show that the non-hæmolytic was at least as fatal as the hæmolytic infection. Thus we may roughly assume that one woman dies of *S. pyogenes* infection of her uterus for every 1000 labours. Now, the death-rate of cases of puerperal fever due to streptococcic infection (whether hæmolytic or non-hæmolytic) is roughly 40 per cent., that is to say, of every five women so affected two die and three recover,[7] and on this estimate there are five cases of puerperal fever due to *S. pyogenes* for every 2000 labours, or one for every 400 labours. If, then, we make the very modest assumption that the presence of *S. pyogenes* in the fæces would only be followed by infection of the uterus once in four times, then that organism would only be required to be present in the intestine of one parturient woman out of 100 such—i e , with a rarity which fits in with the bacteriological findings.

That the infection has an intestinal source in many cases is strongly suggested by the frequency with which *B. coli* accompanies streptococci in the infected uterus I and A. G. R. Foulerton, in our investigation into the causation of puerperal infections, published in 1905,[8] found this conjunction in 50 per cent. of all the cases from which we isolated streptococci from the uterus At that time we explained the presence of *B coli* as being due to a secondary infection, but subsequent consideration leads me to think that that view was probably wrong and that the colon bacillus gained entry to the uterus concurrently with the streptococcus.

### PREVENTION IN VIEW OF CAUSATION.

The problem of how to prevent puerperal fever fundamentally depends on a true appreciation of the sources and mechanism of the infection. These may now be summarised in the following table, a study of which at once suggests the formidable difficulties we are up against.

*Septic Infection of the Placental Site.*

| Source of infection. | | Manner of infection. |
|---|---|---|
| 1 *Extrinsic* Organisms alien to the woman introduced during or after labour. | | (1) Intra-uterine manipulation or instrumentation. |
| | | (2) Intravaginal manipulation or instrumentation, plus spontaneous organismal ascent from the vagina |
| 2 *Intrinsic* Organisms resident in or on the woman at the time of labour | A. | (1) Blood infection. |
| | | (2) Spontaneous organismal ascent from the vagina |
| | C. | (1) Intra uterine manipulation or instrumentation. |
| | | (2) Intravaginal manipulation or instrumentation, plus spontaneous organismal ascent from the vagina. |

A = Autogenous. C = Conveyed

*Prevention of Extrinsic Infection.*—Considering first infection from an extrinsic source because the problem of its prevention is comparatively simple, we may, at the outset, rule out air infection, since it has been shown that aerial transport of septic organisms practically does not occur—a mercy indeed, for if dust was an active agency surgery would be impossible. There remain, then, the persons, instruments, and appliances of the attendants. Instruments and appliances can with certainty be rendered sterile, and, in fact, are so in practically every case nowadays. The hands of the attendants can also be rendered safe by wearing sterile rubber gloves, and this again is common practice. That instruments, ap- and gloves initially sterile can act as convey infection into the vagina or uterus is, however, obvious, if subsequent to sterilisation they are brought in contact with an infected surface, but as regards infection from an extrinsic source, this could only happen as the result of great carelessness and one may add extraordinary ill luck, for the surfaces of the towels, sheets, tables, basins, and so forth, in an ordinary lying-in room, though not sterile, probably not once in many thousand times are contaminated with virulent streptococci.

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[6] Amer Jour of Infective Diseases, April, 1919.

[7] The writer and A. G R. Foulerton had 10 deaths FitzGibbon and Bigger 20 in 47

[8] Trans Obst Soc. of London, vol. xlvii

There is, however, another source of extrinsic infection more difficult to shut out—namely, the throat, nose, and mouth of the attendant. That these regions are frequently the seat of potentially virulent streptococcic infection is undoubted. That such might be conveyed by the salivary spray of persons suffering from tonsillitis, sinusitis, or gingivitis must be admitted. This is recognised in surgical work, where no operation is performed without the operator and his assistants being masked. Obstetric operations differ in no essential from those of ordinary surgery, and logically the same precautions should be observed. Infection by salivary spray has been held by certain writers to be a ready explanation of the occurrence of puerperal sepsis. Whilst agreeing that it probably sometimes occurs, I am of opinion that it does so rarely, for having had a long experience both of the "pre-mask" and "mask" periods of surgery, I know that mask wearing has not made that difference to surgical results which it should have done if infection by salivary spray was at all common.

When, then, we review the possibilities of extrinsic infection, and the means that have been taken, and are taken to-day, against it, and consider the relatively poor results achieved, we have, I submit, no option but to believe that beyond this source of puerperal sepsis there is another which operates with much greater frequency, to the prevention of which I shall now turn.

*Prevention of Intrinsic Infection.*—Given that organisms potential for puerperal sepsis are already resident in or on a woman before labour, our countermoves against the menace to the placental site are clearly as follows: 1. To prevent or do away with all foci of septic harbourage before the labour, or if possible before the pregnancy. 2. If this is impossible, to take measures to prevent living septic organisms reaching the vagina. 3. And if this is impossible because the vagina is already infected, to take measures to prevent living septic organisms reaching the uterus; or if the uterus is already infected or has, of necessity, to be infected during the labour, to take steps immediately the labour is over to destroy the organisms present in the uterus. 4. To raise the resistance of the body tissues against all infection from wheresoever menaced.

The general plan of campaign, then, is simple, but it needs scarcely a moment's thought to realise that its accomplishment is confronted by many difficulties.

### Abolition of Septic Foci.

The final logical outcome of our argument is obviously that a woman should not conceive until it is certain she harbours no potential sepsis. This is a counsel of perfection which, in its fullest sense, will probably never be attained; for to begin with, no hard-and-fast line can be drawn as to what constitutes menaced sepsis; for instance, most of the organisms normally present in the intestine are potentially virulent. On the other hand, much can be done in this direction that has hitherto not been done or done imperfectly. The prevention or cure of such things as chronic tonsillitis, sinusitis, or gingivitis has a special desirability in the case of a woman likely to become, or presently to become, a mother, as have also attention to the teeth, general hygiene, and cleanliness. Conception obviously carries an increased risk in a woman suffering from vaginitis, and as far as a medical man may influence such a matter he should advise against pregnancy until the vaginitis is cured. A vaginitis complicated by pregnancy should be treated vigorously, though it must be owned that the difficulty of doing this successfully is great. Though at first it may appear fantastic, remorseless logic leads to the conclusion that the bacterial content of every pregnant woman's vagina should be ascertained from time to time, so that the obstetrician may take what precautions are possible in the event of organisms likely to produce sepsis being found there. The urine also should be examined for bacteria. And, still pursuing the logical sequence, it is plain that the bacterial content of the intestine should be investigated. Here we are at once up against the difficulty that the bacteria most plentiful in the fæces are, even in the most healthy person, potentially pathogenic. That there is considerable variation in the bacterial content of the intestine I have already pointed out, and, other things being equal, it would appear that the woman in whose fæces streptococci predominate stands in greater risk of puerperal sepsis than the one in whose fæces the colon bacillus is in major quantity. We are, however, only at the beginning of understanding as regards these matters, and our laboratory methods for separating, classifying, and estimating the pathogenic possibilities and probabilities of the intestinal bacteria leave much to be desired. I visualise, however, a time when our knowledge will be so much more precise that the bacteriologist will be able to warn the obstetrician that this or that particular patient carries in her intestine organisms which menace in an abnormal degree the safety of her delivery.

### Safeguarding of the Vagina.

The abolition of all septic harbourage, especially in the near neighbourhood and the approaches of the vagina, is at present impossible, and hence the next obvious item in our campaign against puerperal sepsis is to prevent septic organisms reaching the vagina. This is impossible in those cases in which the vagina already contains streptococci, but these are in the minority, for the bacterial content of that canal, when perfectly normal, is an innocuous one. I have already pointed out that it is a practical impossibility to pass anything into the vagina without transplanting into it some of the organisms resident on its approaches, and these approaches are always more or less fouled by intestinal bacteria and sometimes by organisms derived from the urine. Nothing, therefore, should be passed into the vagina that can be avoided, not only during labour but for some time beforehand. Blair Bell has published evidence which suggests that coitus during the last few weeks of pregnancy may convey into the vagina organisms which, later, produce puerperal sepsis. In view of what we know, this seems quite possible, especially if the male organ is in an infective state from balanitis, cowperitis, urethritis, or prostatitis, but beyond this intestinal organisms are certain to be carried up in the act and some of these may be actively pathogenic.

The fingers and instruments of the obstetrician are a still more likely agent of conveyed intrinsic infection. Gloves can be worn and instruments boiled, but as conveyers of organisms from the vaginal approaches they are just as efficient as the bare hand and the forceps taken out of the hip pocket. Once again we are up against a difficulty, for fingers and instruments must be used in obstetric surgery. In certain regions of the body, as for instance the abdomen, the surgeon can guard against the conveyance of organisms from the skin by covering the edges of his wound with towels or sheet rubber, but the vaginal orifice through which the obstetric surgeon has to work does not lend itself to this. We can, however, endeavour to sterilise the perianal and perivulval skin by the application of a strong, non-irritating antiseptic, and this being done sterile towels should be affixed so as to cut out of the operative field the most infected part of the danger area—i.e., the anus and perianal skin. Even with such precautions the risk of conveyance is not entirely done away with, for organisms may lie inside our protective barrage. This possibility can be coped with by anointing the finger, hand, or instrument with some powerful but non-irritant antiseptic before it is passed into the vagina, so that if any organisms are carried up in the process they get a lethal dose in transit. For this purpose I use "violet green," the antiseptic introduced by Carl Browning and myself some ten years ago.

### Safeguarding the Uterus.

But there are cases in which the vagina is already infected with streptococci by the time labour begins, and these women stand in peculiar jeopardy from spontaneous organismal ascent during the puerperium and from direct manual or instrumental conveyance of the organisms into the uterus during the labour. When a woman is known to be suffering from vaginitis, the practitioner will be on the alert against these dangers, but unfortunately the presence of virulent organisms is not always announced by visible signs of inflammation. It is safest, therefore, to regard every vagina in labour as though it was septic and to avoid as far as possible the passage of anything through it into the uterus. If such passage has to be made, then the vagina should be thoroughly swabbed out beforehand with a strong non-irritant antiseptic, and the hand or instrument, before it is passed up, should be anointed with the same. Where infection of the placental site is specially to be feared, as, for instance, when the patient has an obvious vaginitis, the further precaution should be taken of either swabbing out or douching out the uterine cavity at the conclusion of the intra-uterine manœuvres. I need scarcely remind you in this connexion that manual removal of the placenta or any intra-uterine manipulation after the placenta is delivered is far more dangerous than turning the child or rotating the head within the amniotic sac, since the membranes protect the uterine wall from infection. It might be thought that during the puerperium spontaneous organismal ascent could be prevented, or at all events rendered harmless, by antiseptics applied to the vagina, and so it could be if we had a sufficiently powerful yet innocuous antiseptic at our disposal, and means of easily introducing it into the vagina so that the whole surface of the canal was flooded with it. In practice, however, this is well-nigh impossible, and the attempt carries with it the risk of conveying organisms from the vulva and its approaches. Douching in the puerperium has, therefore, been largely given up of recent years, though there are occasions on which it is the right thing to do if it can be done thoroughly.

There are certain cases of profound vaginal infection in which the best course is to discard that passage as the route of childbirth and perform Cæsarean section before labour has begun. This avoids the possibility of the obstetrician having to directly infect the uterine cavity in the course of intra-uterine manipulations forced on him by the exigencies of the labour, but it does not, of course, entirely abrogate spontaneous organismal ascent during the puerperium. As an example, where the choice lies between Cæsarean section and induction of labour, and the vagina is known to be infected, the abdominal operation is the one to be chosen. Finally, there remain those very grave cases in which the uterus is apparently infected before labour and fever is present from its start or even before it starts. I believe that in some of these the best chance would be given the woman by performing hysterectomy directly the child was delivered.

### Raising Resistance.

Finally, as it is certain that our best endeavours to hunt out and kill the organism, or even to prevent it reaching the uterus, are, in the present state of our knowledge, liable to fail, the question of whether it is possible to raise a pregnant woman's resistance to streptococcal infection merits very serious thought and research. It is no new idea, as you know, and vaccines and serums have been tried quite extensively but up to now with no definite results. That it should be possible to do it with certainty seems reasonable, and that it will be possible in the future I have no doubt. Even as matters stand to-day I think you will agree with me that in a case where streptococcal infection is specially to be feared, prophylactic doses of antistreptococcic serum should be administered.

### Necessity for Improved Conditions.

The scheme of prevention that I have outlined makes great demands on the medical man, and it is impossible for him to comply with them unless he is granted the requisite means, material, and environment. I have before protested against the inadequate circumstances under which much midwifery in this country is carried out and will not repeat myself beyond reiterating my conviction that no great diminution of puerperal morbidity and mortality can be expected until the public is prepared to pay for the things that are necessary for safety in childbirth.

I have ventured to liken the measures required to abolish puerperal sepsis to the moves of a campaign, and, I would add, a very arduous one at that, because the enemy we contend against is rarely in the open but wages a guerrilla warfare by ambush from unexpected quarters. The struggle has been going on indeterminately for more than 50 years, and as far as I can see will so continue until the man in the front line, the doctor in charge, can fight on a more advantageous *terrain*, with more reliable weapons and methods to his hand and better and more readily available help behind the line.

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## THE TREATMENT OF
# ACUTE BACTERIAL INFECTIONS
## WITH INTRAVENOUS INJECTIONS OF PERCHLORIDE OF MERCURY AND MERCUROCHROME.

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The treatment of acute bacterial infections by intravenous injections of perchloride of mercury and mercurochrome 220 is recorded in this communication. The fact that we are without specific treatment for many of the acute bacterial infections has resulted in the trial of various chemical preparations of recent years. I have devoted considerable time to many of these preparations and, therefore, it appeared to me that some advantage might occur if my observations with perchloride of mercury and mercurochrome 220 were put on record. Experience has led me to recognise very fully the necessity to commence such treatment at the earliest possible period from the onset of the illness, just as is now generally recognised to be the essential feature in the treatment of diphtheria and tetanus with the appropriate antisera. In my opinion valuable time is frequently lost in the desire to prove that an infection is generalised as judged by the cultivation of bacteria from the blood. This is especially the case with septic infections complicating obstetrical operations and those due to *S. aureus.*

The *Staphylococcus aureus* by no means infrequently produces an acute inflammatory process of the skin and subcutaneous tissues which may resemble an anthrax pustule. The intensity of the local lesion may not be sufficiently realised, but a fulminating general toxæmia may develop so that death occurs in a few days from the onset of the illness. It is remarkable how rapidly some of these acute bacterial infections advance, as if the patient's resistance were entirely in abeyance, and it is still more serious when we consider that these patients were more often young adults and apparently in perfect health before the illness commenced. It is difficult to believe that satisfactory treatment will be evolved to combat these acute septic infections unless such treatment is carried out at the earliest possible moment. I have treated 330 cases of acute bacterial infections with perchloride of mercury or mercurochrome 220 soluble, or with both these preparations, and in the vast majority of cases the actual treatment has been carried out in detail by me.

Personal experience at the outset in the intravenous administration of therapeutic preparations is desirable. Unfortunately in 25 instances out of these 330 cases the patients were moribund when I was asked to commence treatment, and nothing short of a miracle was likely to have been of the slightest effect towards favouring the patients' chances of recovery. In most of these cases no active treatment had been employed during the acute and brief illness, but in some of the streptococcal infections small doses of antistreptococcal sera had been administered. In all 47 deaths occurred, including six cases of malignant endocarditis, which entirely failed to respond to treatment with either or both of these preparations. This is not surprising when we consider the pathological changes found at autopsy in malignant endocarditis, and that in my experience the disease is usually far advanced by the time the diagnosis is arrived at.

It is a legitimate argument to adopt that some of the patients treated by the intravenous inoculation of perchloride of mercury or mercurochrome 220 soluble, would have recovered without this line of treatment, but this question cannot be definitely settled, although there is very little doubt that it is correct. In the early periods of these acute infective processes it is not possible to form an accurate judgment of the chances of a patient's recovery, and we have no information to guide us as to the length of time which is safe for the infection to remain untreated. It is desirable, therefore, to commence treatment in the early stages of the illness, even if a certain proportion of patients are inoculated with perchloride, mercurochrome 220, or other remedy who might have recovered otherwise.

### *Perchloride of Mercury.*

The first case of septicæmia which I treated with perchloride of mercury occurred in 1918 in the Balkans.

The patient, a soldier, was suffering from an acute illness which was diagnosed on clinical evidence as malignant malaria. There were no physical signs except enlargement of the spleen and pyrexia, but, as he had been for two years in the Balkans, the infection was regarded as malarial in origin. This acute illness, however, was unaffected by quinine. A complete bacteriological examination of the blood and urine was made when the patient's temperature was 105° F. I then gave him 1/16 grain (gr.) of perchloride of mercury in 10 c.cm. of normal saline, intravenously, which was repeated about 12 hours later as no improvement had occurred. After the second injection the temperature fell rapidly from 105° to 100° and then to normal, and the patient made a complete and rapid recovery. The only ill effects were a sharp attack of diarrhœa and mercurial stomatitis, both of which responded to treatment. No malarial parasites were found, but a hæmolytic streptococcus was cultivated from the blood.

It was not until after the war that I employed this method of treating acute bacterial infections on a relatively large scale. The dose given to the patient referred to above was considered at the time to be the maximum advisable and was dissolved in 10 c.cm. of saline, so as to reduce the possibility of local thrombosis to a minimum, but the various essential points at present adopted in this method of treatment will be referred to subsequently.

I have now treated 200 cases of acute bacterial infections with perchloride of mercury; these cases, which were in no sense selected, included puerperal fever, *Staphylococcus aureus* infections (including severe cases of boils and carbuncles), infections due to hæmolytic and non-hæmolytic streptococci, *Bacillus coli* infections, and other septic processes. Twenty-seven cases of puerperal fever were treated and 22 recovered. From three of the cases which recovered hæmolytic streptococci were cultivated from the blood, from two cases non-hæmolytic streptococci. From the remainder blood cultures were sterile or were not made, but from all the fatal cases streptococci were isolated from the blood. Hæmolytic streptococci were obtained from the region of the cervix in every case.

Baccelli[1] many years ago employed intravenous injections of mercuric chloride for the treatment of syphilis, and in 1907 he recommended this treatment for gonorrhœal rheumatism. There is very little reference in the literature to the perchloride treatment of acute bacterial infections, but in 1918 it appears to have been used in various parts of the world. Vecki,[2] of San Francisco, employed a solution of 1 in 1000 for intravenous injections and gave 3·5 c.cm. (which is nearly one-sixteenth of a grain) and repeated the dose when necessary, while in chronic cases he repeated the injections on several occasions. In his cases, which included furunculosis, carbuncles, acute adenitis, erysipelas, and other septic processes, the early fall in the temperature was a striking feature, while the general result was most satisfactory. Ferrari[3] claimed good results from daily doses of 0·01 gramme (g.) of mercuric chloride in influenza, which amounts to approximately 3·0 times my average dose. Pérez, of Madrid, quoted by Vecki, reported a most pronounced curative action from intravenous injections of mercuric chloride in puerperal septicæmia in doses of 10 c.cm. of a solution of 1 in 1000 (0·01 g.). Mello,[4] of Rome, injected 2·5 mg. of mercuric chloride intravenously twice during a period of 24 hours, then 4 mg. (1/16 gr.) at the same interval, for two consecutive days in three cases of puerperal fever which terminated in complete recovery. Nixon,[5] of Texas, states in reference to this method of treatment: "It has been revived from time to time, and each time abandoned, because obliteration of the veins has been produced." To avoid this complication he recommended that the patient's blood should be allowed to mix with the solution of mercury in the syringe, and then the mixture of blood and mercury injected. In his opinion, by this means the ill-effects of the perchloride were avoided, as shown by the results which he obtained in 50 cases without a mishap.

I am indebted to Captain D. C. Monro, R.A.M.C., surgical specialist at the Royal Herbert Hospital, for particulars of a case of septicæmia which he treated along the lines advocated by me with intravenous perchloride of mercury.

The patient, a gunner, aged 22, was admitted to hospital for a strangulated inguinal hernia; two days after operation he had broncho-pneumonia, and his condition was so bad that antistreptococcic serum was given and repeated to the extent of 120 c.cm. in 24 hours, without benefit. A bacillus of the influenza type was isolated from the blood stream. Two injections of perchloride of mercury were given intravenously within 48 hours, with very considerable benefit in the degree of toxæmia and with rapid fall of temperature terminating in complete recovery.

### *Technique.*

The method which I employ is to give 5 c.cm. of a 1 in 1250 solution of perchloride of mercury (1/16 gr.) in saline as a first dose and repeat the injection, if necessary, in 12 to 24 hours, according to the patient's condition. My maximum dose for one injection so far has been 7 c.cm. of 1 in 1250, and such dosage has been reserved for cases which did not appear to offer much hope of success at the outset of treatment, but in two of these cases, although recovery ensued, obstinate mercurial stomatitis developed. In my experience, if four injections given over a period of three days fail to produce definite improvement it is useless to continue with this line of treatment.

The perchloride solution is always freshly prepared and is injected directly into a vein which is rendered prominent for the moment. A little blood is allowed to flow into the syringe and mix with the mercurial solution and the mixture is then injected into the lumen of a vein.

### *Complications.*

*Thrombosis.*—In one instance only local thrombosis occurred as a result of the injection of perchloride of mercury. This patient was unconscious at the time of the first injection and was suffering from *Staphylococcus aureus* pyæmia. I have found that the dilutions of perchloride of mercury in saline which I have recommended are perfectly satisfactory and can be safely employed, provided none of the solution is injected until the blood flows freely into the syringe. The escape of perchloride into the wall of the vein or surrounding tissues will lead to thrombosis which may have serious consequences. Such cases have been recorded in the literature; in fact, the perchloride treatment has been abandoned by some because of thrombosis, tissue necrosis, and other ill-effects owing to faulty technique or from excessive dosage. If, however, every possible care is exercised during the intravenous inoculation of perchloride of mercury, the local risk is negligible. If thrombosis due to the infection has occurred before treatment is commenced, it *may* increase as a result of the mercurial injections, although I have risked this complication.

*Diarrhœa.*—This may be severe and occur within an hour or two of the intravenous injections. At the outset it may be beneficial, but early treatment must be adopted unless it is of a mild character. There may be as many as eight or ten motions in the same number of hours. In my experience, although the severe form of diarrhœa is very exhausting to the patient at the time, it appears ultimately to be of distinct advantage. The most efficient method of treating this complication is by means of salines with opium.

*Stomatitis.*—Twenty hours, or even less, after the intravenous injection of perchloride the gums may be painful, spongy, and red, and show a tendency to bleed. Small ulcers may form which are sometimes very intractable to treatment.

*Nephritis.*—The most dangerous complication is usually considered to be nephritis, but in spite of the large number of injections which I have given nephritis has not occurred. The urine should be examined before and during treatment. In those cases where there has been a large amount of albumin and casts, the perchloride treatment has not been attempted. Two cases of septicæmia were treated with mercuric chloride who had marked albuminuria, but the renal efficiency in each instance was regarded as satisfactory, and no ill-effects followed. Guillain and Gardin, in 1922,[6] reported a case of acute nephritis with cardiac failure from the intravenous injection of perchloride of mercury, and it is stated that mercury was present in the cerebro-spinal fluid.

### *Reactions, General and Local.*

The effects of the intravenous injections may be described as general and local. A slight rise of temperature may occur shortly after the injection of perchloride, and the patient, unless precautions are taken, may suffer from shiverings or true rigors; the temperature may then show a definite fall and may approach or reach the normal level within 24–48 hours, or further injections may be necessary. In some cases, although the progress of the disease appeared to be arrested, recovery was a very slow process. In many instances the fall of temperature was very striking and a marked diminution in the degree of toxæmia occurred which was readily recognised by the patient. When perchloride of mercury is injected intravenously in the early stages of an acute infective process there is a strong chance that improvement will occur, but as the duration of the acute illness lengthens, so the chance of improvement from perchloride diminishes. The chief local change has been arrest of the extension of the inflammatory process, more especially in spreading inflammation involving the face and neck, but when no general beneficial action of the perchloride occurs, there is no probability of arrest of the local process.

In one case of this kind the beneficial effects of the perchloride were very remarkable.

The patient, a man of 60, had a very extensive acute inflammatory process with considerable necrosis involving the upper and lower lip and neck due to the *Staphylococcus aureus*, and he was very toxic. Surgical opinion was opposed to surgical treatment. A diminution in the degree of toxæmia rapidly followed the intravenous injection of perchloride of mercury and the local spread of infection was arrested. A second injection was given of 1/12 gr., and resolution of the inflammatory process occurred.

In cases with closed abscess formation, perchloride of mercury intravenously is useless.

It is believed that this treatment is dangerous, because it is stated that the perchloride greatly depresses the activities of the polymorph, which, of course, is a serious objection. When the late Prof. S. G. Shattock and I were studying the variation in the phagocytic action of the polymorph in the blood in various acute and chronic infective processes, we found that in spite of a depressed phagocytic action of the cells in the blood, and a total reduction in their numbers, yet complete recovery from an acute infective process was possible. In some of the cases treated with perchloride of mercury the total number of polymorphs was reduced and their phagocytic activities depressed, subsequent to the injection of the perchloride, yet the infection was aborted and complete recovery ensued. A detailed record of the blood reactions following intravenous inoculations of perchloride of mercury and mercurochrome 220 will, however, be fully dealt with at a later date.

### *Mercurochrome 220.*

In 1919 Young, White, and Swartz[7] introduced a new preparation for the treatment of bacterial infections. Chemically it is the di-sodium salt of dibromoxymercury fluorescin. It is readily soluble in water and normal saline and is unaffected by moderate heat or exposure to air. It contains about 26 per cent. of mercury, and even 1 per cent. of this preparation does not form a precipitate with hydrocele fluid. The wide range of application of the drug in urinary and many other septic processes is fully recognised, but it is only the intravenous use of this preparation which is now under consideration.

*Toxicity.*—Young, White, and Swartz found from their experiments that 10 mg. per kilo invariably killed rabbits in 24 hours, while 5 mg. produced an albuminuria which lasted one week. Dogs tolerated 10 mg. quite well, but albuminuria occurred without rise in blood urea. It has been shown that alkaloids and certain local anæsthetics may be precipitated by mercurochrome 220. Kolz, quoted by Warren,[8] has recorded a case of poisoning owing to this incompatibility with procain.

### *Personal Experience: Mercurochrome 220.*

I have used this preparation intravenously in 150 cases of acute bacterial infections subsequently to, or instead of, perchloride of mercury, and have found it to be of definite value. Mercurochrome 220 dissolved in saline hæmolyses red blood corpuscles, but in the presence of blood serum or blood plasma the hæmolytic activity is considerably reduced. With washed red cells hæmolysis occurs with a dilution of 1 in 2000 in saline in vitro, while I employ for intravenous inoculations strengths of 1 in 200, 500, and 750 in saline without ill-effect.

I have given daily intravenous injections of mercurochrome for five days without observing any complications which could be credited to it, and possibly daily injections could be given over a longer period. The dramatic effect recorded on several occasions after one or two injections of perchloride of mercury, when the acute infective process was suddenly aborted, has never resulted from injections of mercurochrome. A shivering or true rigor which may follow an intravenous injection of mercurochrome 220, but especially perchloride of mercury, can be prevented, or greatly modified, by keeping patients warm during and after treatment and by giving about 10 gr. of aspirin with hot tea immediately after the inoculation.

In the report issued by the Medical Department of the United Fruit Company,[9] Dr. Deekes and his colleagues record their results with mercurochrome 220 soluble, administered intravenously. A 1 per cent. solution was employed almost entirely, and the dosage varied from 10–15 c.cm., which was repeated as required, but "with few exceptions (such as in patients almost moribund) there was a severe reaction in the form of chills, fever, vomiting, diarrhœa, and stomatitis. These untoward symptoms were of brief duration and differed considerably according to a variety of conditions." Various infections were treated and the results appear to have been satisfactory. Twenty-six cases of lobar pneumonia were inoculated intravenously with mercurochrome, with a mortality of less than 20 per cent., while in the same medical division the mortality from lobar pneumonia over a period of years was 49·13 per cent.

It will be noticed, however, that severe reactions complicated with stomatitis followed these inoculations. In my opinion these toxic symptoms can be explained by the strength of mercurochrome 220 employed for the injections. From personal experience 10 c.cm. of 1 in 200 of this preparation in saline is the maximum dose which should be given, and when the injections have to be repeated it is necessary to reduce the strength of the solution to 1 in 500 after two or three doses of 1 in 200 have been employed. Cases of nephritis with blood, albumin, and casts in the urine have followed injections of mercurochrome 220 in doses of 1 in 100.

The essential fact in the treatment of acute bacterial infections is the neutralisation of the bacterial action without damage of the tissues, but there is a tendency at the present day to concentrate on parasitic destruction without sufficient regard for the host. Some of the disasters which have followed the inoculation of so-called therapeutic remedies have been due to this cause. If acute nephritis is produced there is every possibility that other important structures may be similarly affected, although proof positive evidence may not be obtained during the life of the patient.

The cases treated by me with mercurochrome were similar to those treated with perchloride of mercury, although the fulminating and very severe cases mostly received perchloride of mercury at the outset, and were subsequently treated with mercurochrome 220 when necessary. This preparation can be given, as already stated, in repeated doses provided the correct dilution is employed. Sudden arrest of the inflammatory process did not occur with mercurochrome 220, but in a few instances the acute infective process was sufficiently improved that one or two intravenous injections were sufficient. In most cases four or five injections were necessary. In about 20 per cent. of the cases treated with mercurochrome, which were very largely of a less severe type than those treated with perchloride of mercury, no benefit occurred.

### *References.*

1. Baccelli (1907): La via delle vene apporta si Medicam Eroici, Rome.
2. Veckl, Victor G. (1919): The Use of Intravenous Injections of Mercuric Chloride in the Treatment of Suppurating and Infectious Diseases, Jour. Amer. Med. Assoc., May 31st.
3. Ferrari (1918): Riforma Med., Nov. 9th.
4. Mello, S. (1919): Policlinico, Rome, Oct. 26th, xxvi., No. 43.
5. Nixon, P. I. (1916): The Intravenous Use of Mercuric Chloride, Jour. Amer. Med. Assoc., May 20th, vi., p. 1622.
6. Guillain, L., and Gardin, C. (1922): Mercuric Chloride Poisoning, Annales de Médecine, Paris, April 11th, No. 4.
7. Young, H. K., White, E. C., and Swartz, E. O. (1919): The New Germicide for Use in the Genito-Urinary Tract, Mercurochrome 220, Jour. Amer. Med. Assoc., lxxiii., 20, Nov. 15th.
8. Warren, L. E.: Incompatibility of Mercurochrome 220, Soluble, with Local Anæsthetics and Alkaloids, Jour. Amer. Med. Assoc., lxxx., 15, April 14th, 1923.
9. United Fruit Company, Medical Department, Thirteenth Annual Report, 1924, pp. 83–95.

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**BRADFORD HOSPITALS.**—As we recently announced, a new building for the Bradford Royal Infirmary is to be built at an estimated cost of £500,000. The scheme, which was initiated in 1009, provides for about 400 beds with the necessary adjuncts and all the most modern appliances, and will include a block of separate rooms for paying patients. There are at present 215 beds. The infirmary has been four times enlarged during the last 60 years—it has recently celebrated its centenary—but nearly 30 years have elapsed since the last expansion. The Bradford Corporation Mental Deficiency Committee propose erecting, at a cost of £179,000, a new institution to hold 700 patients. The North Riding County Council will take 100, and York Corporation and Huddersfield Corporation 50 beds.

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# DETERMINATION OF THE BASAL METABOLIC RATE.

By T. C. HUNT, B.A. Oxf.,
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THE standard method used almost universally in England for the estimation of the basal metabolic rate is by the Douglas bag and gas analysis. Although admittedly an accurate, and for physiological purposes an extremely valuable method, it suffers clinically from the drawback that it is a tedious and somewhat laborious estimation, and its technique requires considerable experience if error is to be avoided. For these reasons any simpler, easier, and more rapid method for routine clinical use, and one, moreover, that is capable of general employment in ordinary practice, without the necessity of laboratory aid, is clearly of the greatest value. Such an apparatus is that devised by Sanborn, the "Handy Metabolor,"[1] and this short investigation has been undertaken to see how far accuracy need be sacrificed in order to gain the advantages of speed and simplicity.

For this purpose parallel determinations have been made of the basal metabolic rate in a number of cases in the wards of St. Mary's Hospital both by the Sanborn and the Douglas bag methods, to decide how much trust may be placed in the results of the former as compared with those of the latter. For many reasons the exactly correct basal metabolic rate is an exceedingly difficult value to obtain, though clinically an error of 10 per cent. is not of great significance. With the Douglas bag method a really careful worker can obtain more accurate results than this, and therefore the values obtained by this method in the cases examined were taken as the true metabolic rates with which the Sanborn results might be compared.

### *Procedure: the Douglas Bag Method.*

In all cases the procedure was the same; the usual precautions were taken to exclude mental excitement, movement, &c., and all patients were in bed in the post-absorptive state. The "physiological" method was first employed, and an interval of 15–30 minutes was allowed before beginning the "clinical" determination, to avoid subjective psychic effects resulting from the first investigation. The determination by the Douglas bag method was carried out in the ordinary way, in most cases two samples at least of expired air being analysed in the Haldane gas analysis apparatus. It was found during the few preliminary investigations that a commonly unsuspected source of error could be traced to delay between filling the bag and taking out the samples for analysis (and measurement of the total volume). Although, of course, it was realised that such an interval must, if prolonged, lead to escape or alteration of the gas contents of the bag, it was at first thought—and many workers are constantly in the habit of doing this—that a full bag could with safety be left from, say, noon until evening before a sample for analysis need be taken out. A few determinations from an absolutely new full bag at hourly intervals showed that in even so short an interval a definite diffusion of carbon dioxide outwards occurred, so that regularly diminishing $CO_2$ values were obtained. This is a question of the solubility of the gas in the rubber lining of the bag, and occurs only very slowly (and negligibly) with oxygen. (This solution and diffusion may be strikingly seen if hydrogen is used in the bag.) This error is, of course, easily eliminated by taking a sample of gas from the bag as soon as it is filled into an evacuated sample tube, after which the analysis is carried out when convenient. The oxygen intake, $CO_2$ output, respiratory quotient, and hence the basal metabolic rate were determined, using Zuntz's tables of the calorie value of one litre of oxygen and Du Bois height-weight formula for the calculation of the surface area.

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[1] Basal Metabolism. By F. B. Sanborn, 1048, Commonwealth-avenue, Boston, Mass., U.S.A. 1922.

### *The Sanborn Method.*

With the Sanborn method, taking, of course, the same care as to preparation, &c., the patient simply breathes in and out of a spirometer which is filled with oxygen and contains a soda-lime cylinder which absorbs carbon dioxide. The actual technique of the method is fully explained in Dr. Sanborn's book, "Basal Metabolism," and it is sufficient to say that the apparatus is portable, and that with very little experience both the actual determination of oxygen consumption and the calculation from this of the basal metabolic rate may readily be completed within 20 minutes. The inherent error in the method is that pure oxygen with no $CO_2$ is an abnormal substance to breathe (and in time becomes definitely toxic), and that the respiratory quotient is impossible to calculate and has to be taken as a constant for all individuals at an average figure of ·82. There is further a technical error, in that observations of oxygen consumption are not capable of being read to less than 25 c.cm., and that corrections for temperature and pressure are only approximately made. The first is not a very serious objection. It is found that if three-minute spells of oxygen breathing are observed, the first is higher than the second—up to 25 per cent.—the second still perhaps 10 per cent. higher than the third, but that further observations are then found to remain remarkably constant within the limits of the technique. This is clearly due to the simple solution of oxygen in the blood from the increased pressure of the gas in the lungs and, though leading to an initial apparent increased oxygen consumption, saturation soon occurs and no further solution takes place. Unequal ventilation of the lungs and previous undersaturation of the hæmoglobin of the blood will also lead to false high values, but these factors will normally cause but little or no error. (The alveolar $CO_2$ tension cannot, of course, be calculated in Sanborn's method, and though this is lowered in pure oxygen breathing, especially if any hyperpnœa from nervous influences exists (Hill and Flack), it is doubtful if over a short period the actual oxygen consumption is at all markedly altered from that occurring when ordinary air is breathed.)

As to the constancy of the respiratory quotient—a factor, of course, essential for the calculation of the basal metabolic rate—it at first appears to be a most serious objection that differences in this value, if they exist, cannot be determined. In my series the respiratory quotient varied from 0·78 to 0·91, though 69 per cent. had actual values between 0·80 and 0·84; it is certain that the Sanborn figure of 0·82 cannot be taken as the exact value for all individuals, but it is remarkable how little difference in the actual basal metabolic rate results from a fairly large variation in the respiratory quotient. As an example of this, an oxygen consumption of 220 c.cm. per minute gave by Sanborn's calculation with respiratory quotient 0·82, a basal metabolic rate of +33, but with the actual respiratory quotient as found in the Douglas bag method of 0·76, +31. Thus with a comparatively large change in respiratory quotient, an almost negligible error is introduced into the actual calorie output per square metre per hour. With regard to the actual observation error, the mean value of oxygen consumption per minute is obtained with very fair accuracy (∓5 per cent.) by taking the values of four three-minute spells of breathing; and neglecting a short preliminary period of one or two minutes.

### *The Two Methods Compared.*

The results in a series of 25 cases showed a surprisingly close agreement between the two methods. Cases were taken both of those suffering from thyroid deficiency or hypersecretion and of others regarded as normals who were in the wards for various other conditions. Of seven cases showing clinically no evidence of metabolic disorder, six agreed by both methods within 10 per cent. as having normal basal metabolic rates. The closeness of this agreement may be seen from a typical example.

Patient A. A., aged 53; weight 170 lb., height 73 in. Pulse 70, resp. 20. Suffering from slight prostatic enlargement.

*Sanborn:*

Corrected volume of oxygen consumed per minute (mean of four three-minute spells) .. .. .. .. = 263 c.cm.
Normal for patient .. .. .. = 260 c.cm.
Basal metabolic rate .. .. = Normal.

*Douglas Bag:*

$O_2$ consumed per min. at STP .. .. = 257 c.cm.
R.Q. = 0·83 (1 litre $O_2$ = 4·84 cals.)
Surface area .. .. .. .. = 2·1 sq. metres.
Cals. per hr. (15,420 c.cm. oxygen) .. = 74·6.
Cals. per hr. per sq. m. surface area .. = 35·5.
Normal for patient .. .. .. = 38 cals.
Basal metabolic rate .. .. = −5.

Of these six normal values, five had a Sanborn value above that of the Douglas bag value, though within 10 per cent. of the latter. Of the other two cases giving normal Douglas bag values, one was 8 per cent. lower and one 17 per cent. lower as found by Sanborn's method. Of 15 cases with clinical evidence of hyperthyroidism, the basal metabolic rate by the Douglas bag method varied between +11 and +108; in nine of these the Sanborn gave values above those of the Douglas bag within 15 per cent.; three gave values within 10 per cent., lower than the Douglas bag; and three gave values one 28 per cent., one 31 per cent., and one 60 per cent. above the Douglas bag values. In three cases when the Douglas bag value was below normal (one of frank myxœdema) the Sanborn gave in two, values higher by 9 per cent. and 21 per cent., and one lower by 4 per cent. Thus of 25 cases, four only, or 16 per cent., varied more than 15 per cent. from the Douglas bag result. Of the remaining 21, 16, or 75 per cent., gave values between 0 per cent. and 15 per cent. higher than the "true" value—average 11 per cent. Twenty cases of the total 25 were within 12 per cent. of the Douglas bag value (5 below, 15 above), or 80 per cent., and of these 75 per cent. were values too high.

Thus, though these results were obtained over a small series of cases, the conclusion may be drawn that the Sanborn method is accurate within clinical demands—∓12 per cent.—in 80 per cent. of cases, and that the error, if any, is in 75 per cent. of cases, one of too high and not too low a value.

I should like to express my thanks to Prof. C. A. Pannett, of the Surgical Unit, St. Mary's Hospital, at whose suggestion this paper was undertaken, for the help he has given me throughout the investigation.

# BLOOD TRANSFUSION.

## A PLEA FOR THE DEFIBRINATION METHOD.*

By ROBERT PLATT, M.D. SHEFF., M.R.C.P. LOND.,
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THE two great hindrances to the progress of blood transfusion in the past have been: (1) reactions following the introduction of incompatible blood; (2) the rapid coagulation of blood removed from the vessels. The first difficulty was solved by Jansky[1] and Moss[2] with the discovery of the blood-groups. Many attempts have been made to solve the second, the most convenient solution being the use of citrated blood, first introduced in 1914.[3] The last 11 years, however, have taught us that there is now another difficulty—namely, the "citrate reaction." The symptoms which commonly follow the introduction of citrated blood are a rise in temperature, rigors, and a feeling of general malaise, often accompanied by headache. They occur in at least 20 to 40 per cent.[4] of citrate transfusions—some observers say 60 per cent.[5] or even 70 per cent.[6] The reactions are not due to agglutination or hæmolysis, and hæmoglobinuria never occurs.

The early advocates of the citrate method made light of the symptoms, and rightly so, for by popularising blood transfusion, as a therapeutic method, there is no doubt that many lives have been saved. On the other hand, the symptoms of the reactions are always disturbing, sometimes definitely prejudicial to the recovery of the patient, and have been known to be fatal.[4] That the reactions are due to the citrate and not to the many other factors which have been suggested is shown by the fact that such reactions practically never occur when whole blood is used—and as I hope to show later, when defibrinated blood is used; by the case recorded by Keynes,[7] in which the donor himself, having received some citrate developed a reaction; and by the experiments of Drinker and Brittingham,[8] who showed that citrated red cells, thoroughly washed, might be toxic even to the individual from whom they were taken.

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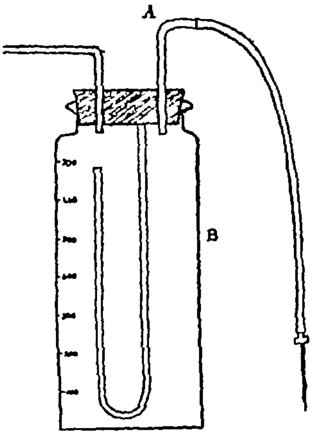
* A paper read before the Chirurgical Club at their Sheffield meeting, Oct. 1st, 1925.

FIG. 1.



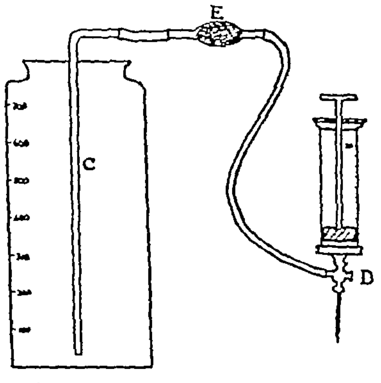
Apparatus arranged for collecting and defibrinating the blood.

My plea is that the final problem of blood transfusion has now been solved by the introduction of a method if anything more simple than the citrate method, and practically free from reactions. I refer to the use of defibrinated blood. This was first employed as long ago as 1835,[9] but we owe to Colebrook and Storer, who published their paper in 1923,[10] the introduction of the present simple technique. My own method is merely a modification of theirs, in most essentials identical, but I think slightly more simple. However, since defibrinated blood is still but rarely used, the method will be briefly described.

*Technique.*

1. *Collecting the Blood.*—A wide-bore needle, connected to about 12 inches of rubber tubing, is inserted into the donor's vein. The tube leads through the glass connexion (A) into the jar (B) (Fig. 1). A glass rod, bent in the shape of a U, protrudes from the under surface of the rubber bung, and must all but touch the bottom of the jar. The blood is allowed to flow into the jar by gravity, and as soon as the first few c.cm. are collected, an assistant shakes the jar briskly in such a way as to keep the blood rotating round the U-shaped rod. This rotation is kept up the whole time that the blood is being collected, and for *at least six minutes afterwards.* All the fibrin collects on the rod, the rest of the blood remaining permanently fluid. Instead of the usual tourniquet on the donor's arm, a blood-pressure armlet pumped up to about 80 mm. of mercury ensures that the veins, but not the arteries, are obstructed. A suction bulb may, if desired, be attached to the second tube leading into the jar. This tube is otherwise only necessary as an air outlet.

FIG. 2.

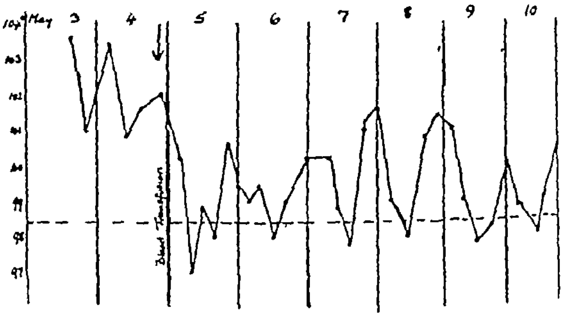


Apparatus arranged for injecting the blood.

2. *Injecting the Blood.*—The rubber bung and its attached tubes are removed from the jar, and with them the U-rod and adherent fibrin. The long glass tube (C) (Fig. 2) is then inserted into the jar. This is connected by a rubber tube to the two-way tap (D), but the rubber is interrupted by a small glass bulb (E) which contains *glass*-wool to act as a filter for possible small clots. The tap (D) is connected with a syringe at one end, and with a needle or cannula at the other. Before inserting the needle or cannula, the whole system is, of course, filled with blood by suction from the syringe. The blood from the jar is then injected in successive syringefuls, the tap being turned alternately to fill from the jar, or empty into the vein. In the majority of cases it is easier in the long run to dissect the vein of the recipient under local anæsthesia, and use the cannula. The syringe, tap, needles, and cannulæ all have "Record" mounts, and are interchangeable. With the exception of these parts, the whole apparatus can be made in any laboratory, but the Medical Supply Association can supply the whole apparatus, or any part of it.

Colebrook and Storer brought out their method for the purpose of giving immunised blood. They claim that by immuno-transfusion many cases of septicæmia are benefited, the temperature actually falling after transfusion. I have never tried immuno-transfusion, but I have had several results which I think are as striking as theirs. The chart shown in Fig. 3 is from a case of septicæmia and secondary hæmorrhage from a septic wound of the leg; 200 c.cm. of the patient's blood were removed by venesection, and replaced by 500 c.cm. of defibrinated blood. He made a very good recovery. In 34 consecutive transfusions I have not had a single symptom of a reaction, nor a rise of temperature in a previously afebrile patient. Colebrook and Storer, in a later paper,[11] record a similar freedom from reactions, again referring to immuno-transfusion.

FIG. 3.



Temperature chart before and after transfusion.

In the course of the series, I have given most of the combinations of blood-groups that are compatible—namely, IV. to IV.; IV. to III.; IV. to II.; IV. to I.; III. to III.; II. to II.; and II. to I. The cases include several of pernicious anæmia transfused more than once. In septicæmia, pyæmia, bacterial endocarditis, and other febrile states there is usually a fall of temperature and clinical improvement, which, however, in severe cases is only too often temporary.

*Conclusions.*

1. The disadvantage of transfusion with citrated blood is the frequency with which "reactions," often mild, sometimes serious or even fatal, follow the introduction of the blood. 2. In 34 consecutive cases transfused with defibrinated blood no such reaction occurred. 3. The defibrination method is, if anything, the simpler of the two. 4. The defibrination method therefore deserves much greater popularity than it has yet received. If, after extended trial, it still proves satisfactory, the citrate method should be abandoned as obsolete.

*References.*

1. Jansky, J.: Klinoky Sborink, 1907, viii., 85.
2. Moss, W. L.: Johns Hopkins Hosp. Bull., 1910, xxi., 63.
3. Agote, L.: Anales del Inst. Modelo de Clin. Med., Buenos Ayres, January, 1915.
4. Bernheim, B. M.: Jour. Amer. Med. Assoc., 1921, lxxvii., 275.

5. Unger, L. J.: Ibid., 1917, lxix., 2159.
6. Personal communication to the author.
7. Keynes, G.: Blood Transfusion, London, 1922, p. 122.
8. Drinker, C. K., and Brittingham, H. H.: Arch. Int. Med., 1919, xxiii., 133.
9. Bischoff, T. L. W.: Arch. f. Anat. Physiol. u. Wissensch. Med., 1835, 347.
10. Colebrook, L., and Storer, E. J.: THE LANCET, 1923, ii., 1341 and 1391.
11. Same authors: Brit. Jour. Exp. Path., 1924, v., 47.

# A BLOOD TRANSFUSION APPARATUS.

## INTRODUCING THE USE OF "RECORD" SYRINGE NEEDLES BOTH FOR THE DONOR AND THE RECIPIENT.

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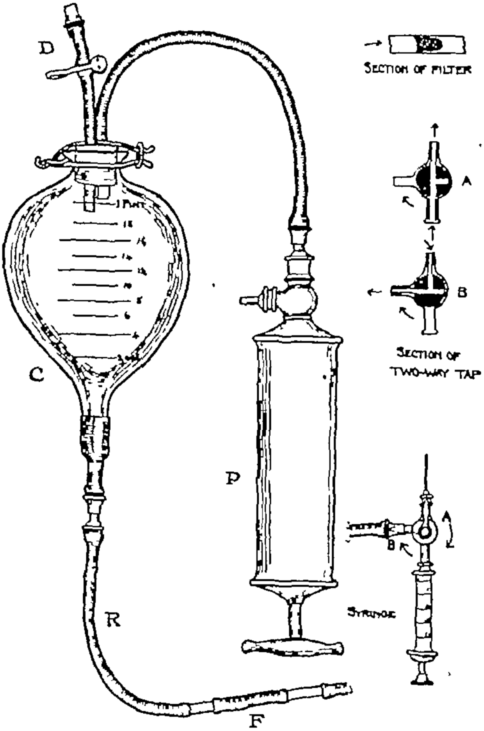
THE following apparatus has been devised for transfusing citrated blood with "Record" syringe needles. The method briefly consists of aspirating the blood from the donor's vein into a glass container and of pumping it into the recipient's vein through a fine needle.

The transfusion bottle is shown in the accompanying diagram, and consists of a pear-shaped glass container, closed at one end by a rubber stopper fitted with an air-inlet tube (P) and a shorter tube (D) which collects the blood from the donor. After having collected the blood, a long tube (R) is attached to the lower end of the container and conveys the blood to the recipient. It is provided with a filter consisting of a thimble of fine wire gauze inserted inside the tube between two glass connexions. The apparatus is also provided with a powerful suction and pressure pump and with a two-way stop-cock; the former is attached to the air-inlet tube, the latter to tube (D) or (R), and is fitted with a needle and a syringe. By means of this stop-cock the operator may first ensure that the needle is inside the vein by drawing off a little blood into the syringe, and then by a quick turn of the tap divert the flow of blood into the container, or into the recipient's vein, as the case may be. This eliminates unnecessary delay in connecting the apparatus to the needle after the vein has been punctured and prevents blood clotting inside the needle. A thick and short (1 in. long) exploring needle is used for collecting the blood from the donor, whilst a very fine needle (such as is used for intravenous injections of galyl) is used for transfusing the blood into the recipient's vein.



The blood transfusion apparatus is shown ready for transfusing blood into the recipient. P, Suction and pressure pump connected with container, C. D, Inlet tube from donor (clipped). F, Filter. R, Outlet tube to recipient (the two-way stop-cock, syringe, and needle have been attached to the distal end).

### *Technique.*

The required amount of a freshly prepared 5 per cent. solution of sodium citrate is aspirated into the container. The mixture of citrated blood should not contain less than 0·5 per cent. sodium citrate (i.e., for a pint of blood 2 oz. of a 5 per cent. solution are required). The two-way stop-cock, fitted with the syringe and needle, is attached to the inlet tube (D) with the tap turned in such a way as to have the needle and syringe communicating. Having punctured the vein of the donor, the operator withdraws some blood into the syringe (thus ensuring that the needle is inside the vein) and then turns the tap and allows the blood to flow into the container. The flow of blood is assisted by means of the aspirating pump and by instructing the donor to clasp and unclasp his fist alternately. Only a very slight negative pressure is required, as too much suction is liable to collapse the walls of the vein. A tourniquet should have been placed around the upper arm of the donor, tight enough to obstruct the venous blood, but sufficiently loose to allow the radial pulse to be still felt. After having withdrawn the required amount of blood, tube (D) is clipped, tube (R) is attached to the lower end of the container, and a little blood is allowed to be run through in order to expel all the air contained therein.

The procedure of transfusing the blood into the recipient's vein is similar to the one described above when collecting the blood from the donor, but the tourniquet has to be unloosened as soon as the vein is punctured. A fair amount of pressure is required in order to maintain a steady flow of blood through the very fine needle.

This method of blood transfusion is easily carried out at the bedside and does not require any local anæsthetic. The same vein may be used repeatedly when blood transfusions are required at frequent intervals, such as in the treatment of pernicious anæmia.

Mr. Charles F. Thackray, Great George-street, Leeds, is the maker of the blood transfusion apparatus.

# ERYTHRŒDEMA OR PINK DISEASE.*

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THE condition about to be described has lately made its appearance in Great Britain, and occurs in young children. It has been called erythrœdema, erythrœdema polyneuritis, acrodynia, and pink disease. The characteristics are fairly sudden onset in a healthy baby, beginning with irritability, insomnia, and loss of appetite. A miliary rash appears, followed by the development of the characteristic pinkness of the hands, feet, and face, and marked hypotonia of the muscles. Symptoms resembling meningismus appear, and the child becomes intensely miserable with photophobia, gingivitis, and dropping out of the teeth. Death may occur very suddenly as the result of weakness or terminal infection, or the child may make a slow recovery and return to complete health.

### *History.*

Early in 1921 Wood[1] described this disease. He mentioned that Swift, of Adelaide, had read a paper in 1914 at the Tenth Australian Medical Congress at Auckland, founded on notes of 14 cases. The disease has, therefore, been recognised in Australia for a long time. More recently there have been many articles in America describing this disease, chiefly under the heading acrodynia. A good summary is given by Rodda,[2] in which he mentions that Bilderback in 1919 reported ten cases. In THE LANCET[3] in 1918 a summary of Swift's article is given. This was followed by a note on similar cases by Doak. Doak's cases are not fully described, but some may have been pink disease, though three of them gave a positive Wassermann. They occurred in the Infants Hospital, Bradford. Swift stated that he had seen cases of the disease when he was in London, and Parkes Weber demonstrated a case which was probably one of severe erythrœdema in 1921, and described it as pink disease in 1922. Thursfield and Paterson described a case in 1921–22, and Paterson and Greenfield gave a complete account of the disease[4] in a report of post-mortem examinations on two fatal cases. They use the name erythrœdema polyneuritis because there was distinct evidence of polyneuritis in the autopsies in their two cases. Fowler's article also gives a detailed account of the disease with reports of four cases. In other parts of Europe not much attention has yet been given to the disease, though it has occurred. Comby in France reported a case in 1922, and Feer and Keller in Germany. In Manchester cases have been met with for some three years. The first case which I recognised as pink disease was seen by me in May, 1923, and in June, 1925, I showed some cases at a clinical meeting of this society. From my own experience I have no doubt that a considerable number of cases have been occurring in and around Manchester for the past two or three years, and in many instances have not been recognised.

### *Detailed Description.*

A baby from 1 to 3 years old, who has previously been well, becomes from no apparent cause irritable, loses appetite, sleeps badly, and begins to whine and cry. Marked perspiration and a miliary (sweat) rash develop, and the infant becomes steadily weaker. Then, often quite suddenly, his hands and feet become red and swollen, and take on the characteristic pink appearance. The rash continues to appear, sometimes with small pustules, and in most cases desquamation occurs, noticeably at the edges of the pink areas. The pink appearance may spread to the cheeks and nose, and that in the hands and feet usually assumes a deeper and blue colour. In the later and recovery stages of the disease rather remarkable variations of this phenomenon occur; thus for some days the extremities will be merely a light pink and for others they will be cold and blue and have the appearance of a very large chilblain. The child is generally distressed because the hands and feet prick and burn, and he may try to alleviate this by rubbing or even biting the affected parts. Symptoms of head irritation may now appear, giving rise to a suspicion of meningitis, but they go no further than the signs described as those of meningismus. There is no real retraction of the head, but there is much irritation, because the child moves the head from side to side, and often pulls out the hair until he has bald patches.

Photophobia may be a very marked symptom causing the child to bury his face to avoid the light, thus adding to the picture of cerebral irritation and abject misery presented by the case. This appearance is further increased by the hypotonia of the muscles, as a result of which the child lies in a characteristic position of inertia, or sits up in a position of atonia with drooping shoulders, gaping of the mouth, and drooping of the eyelids. There is wasting with muscular weakness and paresis, the knee-jerks are diminished, and in some cases sensation may be impaired. But it is difficult to test for this because the child is so young. The hair becomes dry and wispy. Salivation occurs, and perhaps nasopharyngitis. Gingivitis may make its appearance, and go on to dropping out of the teeth. This is sometimes rather a striking feature of the case, and I have known it to be taken as evidence of a possible specific origin. It is usually a very troublesome complication, and the cause of much anxiety to parents and medical attendant. Ulcers of the mouth are not rare. If other special examinations are made the pulse is found to be rapid, the blood pressure very high, 100–120. The blood shows, according to Brown, a polymorpho-nucleosis, and, according to Fowler, a leucocytosis. Wassermann tests have been negative; the cerebro-spinal fluid has been negative, except in one case where Blackford reported an increase of globulin. The urine may show pus, but pyelitis may be the common complication of any such asthenic condition in a child. Several of my cases in the later stages when they were recovering had a curious golden-orange tinted urine.

We call the disease erythrœdema, but the œdema is not always very marked to external examination; there is, however, no doubt that it does occur. Thus Butler reports a section of the skin to show the intense hyperkeratosis and much œdema. The pinky-blue appearance of the extremities remains a very marked feature of the case throughout the long course of recovery; it comes and goes, the variations not always seeming to be related to chilly atmospheric conditions but more to some nervous control. This is suggestive, in view of the theory that the sympathetic nervous system is affected.

The progress of the case is, in my experience of 12 cases, usually favourable, but there are quite a number of fatal results. If the case is going to improve, there is after one or two months a gradual improvement in the general health. The child begins to take more interest in his surroundings, sleeps better, takes more food, and the symptoms begin to abate. The period of convalescence is long, and may last for one or two years, but recovery is complete. Not all cases, however, proceed to a favourable termination; quite a number of cases have been reported as dying suddenly with no apparent cause, others die by a terminal infection, or by the process of gradual exhaustion. There is no definite evidence yet as to the reason for sudden death.

### *Ætiology.*

Age: In most cases this disease occurs in young children between 1–3 years. Rodda reports a case at the age of 7 years. Sex: Both sexes are equally affected. *Season*: Most cases occur in the early spring or summer, and it has been suggested that the disease follows outbreaks of influenza of the spring before. *Distribution*: There is as yet no evidence of cases coming from any one area. My cases came from widely separated areas though most of them were from south Manchester. The history of the disease seems to show that it occurred first in Australia, then in America, and then in Europe. It certainly seems to be a new disease here. I can remember during the last 20 odd years occasional cases of a very similar nature which we then called *meningismus*, but I have no notes or recollections of having seen the characteristic pink appearance of the extremities. If the disease is not new it has certainly increased very much in this district in the last three years.

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* A paper read before the Manchester Medical Society.

[1] Medical Journal of Australia, February, 1921.

[2] American Journal of Diseases of Children, August, 1925.

[3] THE LANCET, 1918, i., 611.

[4] Quart. Journal of Medicine, 1923–24.

There are several theories as to causation; one of the most likely is that it is an infective disease. Many observers report nasopharyngitis; some have found diphtheroid bacilli. Hess reported a case with ulcer of the pharynx leading up to mediastinal abscess as evidence of relation between the disease and local sepsis. Vipond reports two cases with adenopathy in which he isolated a Gram-positive diplococcus from the glands and administered a vaccine with good results in both cases. Paterson and Greenfield report a definite polyneuritis, affecting particularly the peripheral parts of the nerve trunks, with diffuse increase of small cells in the grey matter of the central nervous system, especially of the lumbo-sacral enlargement of the cord. There were also grave changes in the motor nerve cells of the ventral horns, particularly those supplying the distal portions of the limbs. But they state that they have no clear evidence of microbial invasion, though they think it likely. Blackford reports an autopsy in which evidence of encephalitis was found.

The rash is very like a septic condition, and I have made many attempts to obtain an organism from the pustule, but it is very difficult to find any actual pus, and I have only twice succeeded in obtaining a staphylococcus which was probably a skin infection. Several observers report cultural examinations of the blood, but up to the present they have been negative. Other observers report a very great improvement from removal of the tonsils and from intranasal treatment. Others, again, report very good results from artificial sunlight treatment which is most efficacious in septic conditions. Another possible theory is that it is a deficiency disease, and investigations have been carried out to see if diet had any effect, but most observers have come to the conclusion that the disease is not a deficiency one. Three of my cases were breast-fed at the time of onset. The trouble in the hands and feet very closely resembles that of a chilblain, and, in fact, many of the symptoms of the trouble might, as suggested by Feer, refer to disorders of the vegetative nervous system. These are salivation, rapid pulse, insomnia, mental depression, and the characteristic pinkness and œdema.

### *Nomenclature.*

It is necessary to decide what name we shall give to this disease. At present there are the following to choose from—erythrœdema (Swift), (Wood), acrodynia (American), pink disease, erythrœdema polyneuritis (Paterson and Greenfield). The child certainly suffers from pinkness and usually from œdema, though this is not always very evident externally. I think that erythrœdema is a better name than acrodynia. Acrodynia means painful extremities, but it has already been used to describe an epidemic of acute infective polyneuritis which occurred amongst French soldiers, and it is a pity to transfer it to this disease. Many observers in America have adopted this term, but Butler and Bilderback do not agree with it. We have not yet sufficient evidence to say that polyneuritis occurs in all cases, and therefore it is doubtful whether we should add the word polyneuritis.

The name pink disease is an arresting description, and I think it is likely to hold. It is certainly useful in attracting attention to the disease to make it more fully recognised. We can therefore call the disease erythrœdema or pink disease.

### *Clinical Reports.*

The following is a brief summary of notable points in 12 cases of pink disease which have recently occurred in my practice.

The first case was seen in May, 1923, the next four in 1924, two in June, one in July, one in September, and the next seven in 1925. March, April, May, two in June, July, and September. These dates refer to the onset of the disease The disease, therefore, seems to occur in the late spring and early summer. The ages of onset were, three under the age of 1 year, all being breast-fed babies, and the rest under the age of 3 years; eight were boys and four girls.

With regard to the district in which the disease arose, seven were in the south side of Manchester, but were in widely scattered areas, as follows: Rostherne, Altrincham, Ashton-on-Mersey, Stretford, Rusholme, Chorlton, and Didsbury. There were cases also from Patricroft, Irlam o' the Heights, Bolton, and Hyde.

With regard to symptoms and signs, in two cases the bowels were loose and slimy at onset. All of the children had a decided rash, in only three was œdema a marked sign. In three of the cases there was a history of pulling out of the hair Five of them had marked photophobia, and in one Dr. H V. White, of the Eye Hospital, reported phlyctenular conjunctivitis and keratitis. In three cases there was history of nasal discharge, but in others there was no nasal discharge. Neuritic pains were present in one case. Ulceration of the gums was present in three cases. In two the teeth fell out, and in one there was a definite mouth ulcer inside the lower lip. One case developed intussusception in the course of the disease. It should be noticed that one of Paterson and Greenfield's cases died of intussusception. In at least eight cases there were decided signs of meningeal irritation. Chest signs in the form of bronchitis were present in two cases. The temperature was raised early on in the disease to 100° or 101° F. in four cases. The urine showed pyelitis in one case and in one marked deposit of urates, and in three in the later stages there was the definite golden colour. This sign is very noticeable when it is present. Blood culture (Dr A. Sellers) was negative in one case. Swabs of pustules showed staphylococci in two cases, but these were regarded as skin infections.

With regard to treatment, open air, good hygiene, and generous diet were most effective; artificial sunlight did good in one case, and in all cases gastro-intestinal disinfection seemed to have effect. Tuberculin injections were given in five cases; in some cases they appeared to have a decidedly beneficial effect. All the 12 cases have made a good recovery.

### *Differential Diagnosis and Treatment.*

The disease may be mistaken for (1) toxic œdema following gastro-enteritis, (2) meningitis, (3) multiple neuritis, (4) mental defect, (5) general tuberculosis, (6) congenital syphilis, (7) Raynaud's disease, (8) erythromelalgia, (9) rheumatism with sweat rash, and (10) pellagra. But in none of these is there the characteristic persistent pinkness of the extremities. Congenital syphilis gives the mouth signs and a rash, but not the pink extremities. The œdema of toxic œdema is much more pronounced and generalised. Once the disease has been noted it is easily recognised again.

Many observers in discussing the treatment deplore the fact that little can be done, but every effort should be made to relieve symptoms and promote recovery. Treatment should be directed to keeping up the strength, to relieving symptoms, and to trying to find some specific curative agent. Rest under good hygienic conditions is very important. The child must not be chilled too much, but, as the disease usually occurs in the summer time, open-air treatment can often be carried out. I have found this to help cases very much, especially if sunshine is available. With due attention to the bowels and digestion a generous diet should be given, especially during the misery stage. The nurse should attempt to persuade the child to take food. Tonics like cod-liver oil emulsion and nux vomica can be used. Paterson and Greenfield recommend small doses of arsenic. Thyroid does not do good.

The skin symptoms are chiefly those of the rash and irritability. Sweet recommends a dusting powder, with oxide of zinc, starch, and boric acid, together with silk clothing; Field a daily bran bath. I have used an ointment of sulphur and carbolic ointment equal parts mixed. Wood recommends painting of the fingers and toes with tr. iodi.

Another possible means of relief is calcium lactate internally, on lines similar to the treatment of chilblains. The gums may be very sore, and in my first case, before I recognised the disease, I had ordered grey powder in fairly large doses owing to the possibility of specific origin. The medical attendant and I had a discussion as to whether the stomatitis was a mercurial one or a specific one. However, we persisted in the grey powder, and, I think, it had a beneficial effect. Cleanliness and soothing applications are useful. Fowler recommends painting the gums with 1 per cent. chromic acid. The acute misery and hypotonia are a very troublesome complication, especially as they are usually coupled with insomnia. Only general measures will have much effect on this. I have not found that meningeal signs are relieved by lumbar puncture in these cases. The insomnia is best treated by open-air and artificial sunlight or real sunshine, by alleviating irritation, and by soporifics such as antipyrin, dial, and bromides, but it is not easy to make much impression on it in the worst stages of the disease.

The nasopharynx should be cleared if there is any evidence of infection; Rodda claims that removal of the tonsils should be carried out in every case, and that it has a remarkable effect in shortening the duration of the disease. If the bowels are at all upset a gastro-intestinal disinfectant should be used. The photophobia is curious and it was this that led me to try tuberculin. Having had several cases of photophobia which have improved very much with tuberculin, I tried it in one of these cases before I knew what the disease was. It was tried in five cases and it did good in four of them. It is not suggested that the disease is tuberculous in origin, but it is suggested that tuberculin has an effect in shortening duration in some cases. The urine must be examined for pyelitis and suitable treatment adopted.

Sweet claims very good results from artificial sunlight. I have tried this in some of my later cases, but have not noticed the very rapid cure which he claims for it; still it is likely to be a remedy of value. It is important to warm the limbs before the exposure.

*Specific Treatment.*—Attempts can be made to obtain an infective agent from nasal secretions or pustules, or from the blood. But pustules are scarce and most of my cases had no nasal discharge. Vipond took cultures of material aspirated from affected glands in two cases and had a vaccine prepared with very beneficial results in each case.

The bibliography of the disease has already attained considerable proportions, as can be seen from the following references, some of which are quoted from the lists given by others.

### *References.*

Bilderback, J. B.: J. Amer. Med. Assoc., 1925, lxxxiv., 495–498; Northwest. Med., 1920, xix., 263. Bliss, G. L.: Arch. Pediat. N.Y., 1923, xl., 707–714. Bogert, Van der: Arch. Pediat. N.Y., 1923, xl., 410. Brown, A., Courtney, A. M., MacLachlan, I. F.: Arch Pediat. N.Y., 1921, xxxviii., 609–628. Butler, J.: Arch. Dermat. and Syph., 1925, xi., 166. Bradford, J. R., and Alt: Quart. J. Med., 1918–19, xii., 89. Byfield, A. H.: Amer. J. Dis. Child., 1920, xx., 347. Cartin, H. J.: Pennsylvania M. J., 1921, xxiv., 287. Comby, J.: Arch. de med. d. enf., Paris, 1922, xxv., 680–685. Davis, C. M.: Arch. Pediat. N.Y., 1922, xxxix., 611–617. Doak, J. S.: THE LANCET, 1918, i., 681. Emerson, P. W.: J. Amer. Med. Assoc., 1921, lxxvii., 285. Feer: Ergebnisse. d. inner. Med. u. Kinderheilk., B. xxiv., S. 100, Berlin, 1923. Field, M. S.: Arch. Pediat. N.Y., 1922, xxxix., 116–121. Fowler: Edin. Med. J., 1925, xxxii., 177. Frank, E. S.: Nederl. Tijdsch. v. Geneesk., April, 1925, 1819–1822. Foerster, H. R.: Archiv. Dermat. Syph., 1925, xii., 17. Giffen, S. D.: J. Mich. Med. Soc., 1924, xxiii., 8–15. Helmholtz, H. F.: Amer. J. Dis. Child., 1925, xxx., 596. Hess, J. H.: Ibid., p. 597. Keller, W.: Klin. Wehnschr., 1925, iv., 1256; Amer. J. Dis. Child., 1925, xxx., 673. Lindsay, L. M.: Can. Med. Assoc. J., xii., 618 (Paterson and Greenfield). Littlejohn, E. S.: Med. J. Aust., 1923, i., 689–692. McKenzie, A. F.: Can. Med. Assoc. J., 1923, xiii., 43–47. McNeal, M. D.: Minnesota Med., 1922, v., 153–156. Miller, M. K.: Indiana Med. Assoc. J., 1921, xiv., 144. Paterson, D., and Greenfield, J. G.: Quart. J. Med., 1923–24, xvii., 6. Porter, L.: Med. Clin. N. Amer. Phila., 1922, vi., 431–444. Petren, K.: Rev. neurol. Par., 1921, xxvii., 813–814. Rodda, F. C.: Amer. J. Dis. Child., August, 1925, xxx., 2, 221. Rodda, F. C., and Butler, J.: Amer. J. Dis. Child., 1925, xxix., 288. Rewalt, R. K.: Atlantic. Med. J., 1924–25, xxviii., 127–130. Sweet, G. B.: Arch. Pediat., 1925, xlii., 543. Swift, D. H.: THE LANCET, 1918, i., 611. Szwajkart, A. L.: Arch. Pediat. N.Y., 1924, xli., 791–793. Thursfield, H., and Paterson, D.: Brit. J. Dis. Child., 1922, xix., 27. Thursfield, H.: Proc. Roy. Soc. Med., 1921–22, xv., Sect. Stud. Dis. Child., pp. 27–29. Thursfield, H., and Paterson, D.: Ibid., Proc. Roy. Soc. Med., p. 53. Weber, Parkes: Brit. J. Dis. Child., March, 1922, p. 17; Brit. Jour. Derm. and Syph., 1921, xxxiii., 228. Weston, W.: In Abt's Pediatrics, 1923, ii., 986–993. Weston, W.: Arch. Pediat., 1920, xxxvii., 513. Whitfield, A.: Proc. Roy. Soc. Med., 1922–23, xvi., Sect. Dermat., 75. Wood, E. J.: Amer. J. Trop. Med. Balt., 1921, 291–310. Wood, A. J.: Med. J. Aust., 1921, i., 145. Vipond, A. E.: Arch. Pediat. N.Y., 1922, xxxix., 699–704. Zahorsky, J.: Med. Clin. N. Amer. Phila., 1922, vi., 97–105. J. Amer. Med. Assoc., 1922, lxxix., 1925; J. Missouri Med. Assoc., 1922, xix., 296; Ibid., 296–300.

# Clinical and Laboratory Notes.

## A CASE OF ANEURYSM OF A SINUS OF VALSALVA BURSTING EXTERNALLY.

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WHILE it is common enough for an aneurysm of the arch of the aorta to rupture externally, this accident is an exceedingly rare termination in the case of an aneurysm originating from the sinuses of Valsalva, the commonest rupture in this case being into the pericardium. Intrapericardial rupture was prevented in the case now described by the presence of a coexistent adherent pericardium, probably of rheumatic origin.

The patient, a man of 49, acquired syphilis in 1895 when in India. He received mercurial treatment, and had no other illness till the end of 1911. He was then serving in the army in France and he had an illness diagnosed as rheumatic fever, and was in hospital for three months. This left him with a "slight murmur," and his sheet was marked "D.A.H." He was discharged in 1919 with a pension on account of V.D.H. Since then he had worked almost without interruption as a packer in a motor-cycle factory.

Two years ago, while watching a football match, he suddenly felt "a stiffness across the front of his chest," which developed into a pain that prevented him from walking home. It soon passed off, and he was able to work for a year, complaining only of occasional attacks of pain on the top of the right shoulder and on the front of the right chest. In July, 1924, a swelling appeared in the region of the right nipple and below. It was moderately painful and for the first time he was obliged to cease work. He resumed work again after five weeks in bed, the swelling being still present. In December, 1924, a soft pulsating swelling—quite separate from the first swelling—appeared in the mid-line of the sternum at the level of the sixth costal cartilage. This was diagnosed as a gumma, and he was sent to the V.D. department. W.R. was positive. Dr. G. Mitchell, in charge of the V.D. department, noted that the pulsating swelling over the sternum—of the size of a thrush's egg—was surrounded by a triangular area of skin over the lower half of the sternum, which showed well-marked syphilitic mottling. He was treated with iodides and injections of Luetol, and improved so much that by the sixth injection the swelling had entirely disappeared, though pulsation could still be seen and felt where it had been. He left off treatment, but three months later, in May, 1925, the swelling reappeared, and on May 25th the skin over it broke, a mass of pulsating blood-clot appearing. He was then transferred to me and admitted to hospital. During all this time since July, 1924, he had continued at work without interruption, suffering no pain and feeling no discomfort.

*Condition on Admission.*—On the right side of the chest there was a firm rounded swelling, with very slight pulsation, involving the third, fourth, and fifth costal cartilages, extending from the nipple line to the border of the sternum. The lower half of the sternum was covered by a triangular area of discoloured skin, and in this, opposite the ends of the sixth costal cartilages, was a round hold half an inch in diameter, filled by a mass of pulsating blood-clot, from which there was slight oozing of blood. The heart was enlarged, the apex beat and the cardiac dullness on the left reaching to the nipple line in the sixth interspace. The upper limit of cardiac dullness was normal. On the right the limits of dullness were normal over the first two spaces, but below them the cardiac dullness was continuous with that produced by the rounded tumour. There was, therefore, continuous dullness from nipple to nipple. Heart sounds: double aortic murmurs, conducted in the usual directions, and audible over the rounded swelling. At the apex there was a long systolic bruit, conducted to the axilla, followed by a long rumbling bruit occupying the whole of diastole. No thrill was felt. Pulse 72, regular, of well marked Corrigan type. Blood pressure 210/80. There was no pain or dyspnœa, and he could sleep well in any position. This condition remained the same, except that the oozing of blood from the hole slowly increased until June 10th, 1925. On this date there was a sudden severe hæmorrhage from the hole, which was eventually stopped by pressure. On the following day the aneurysm burst through the hole, causing death in about two minutes.

*Post-mortem Examination*.—All the organs were normal, except the heart and great vessels. The pericardium was very large, and was firmly adherent in front to the sternum and to the costal cartilages of the third, fourth, and fifth ribs on the right side. The pericardial cavity was completely obliterated, the two serous layers of the pericardium being united by dense fibrous adhesions. The right auricle and right ventricle and their valves were normal. There was well-marked hypertrophy of the left ventricle, but there were no vegetations or signs of old endocarditis on the mitral valve. The aortic valves showed profuse changes of syphilitic character, being fused at their base, shortened, and the edges thickened into a nodular roll. The sinus of Valsalva by the anterior cusp was expanded out to form a saccular aneurysm of circular shape, the entrance to the aneurysm having a sharp edge surrounded by great hardening of the aorta. The aneurysm, which was entirely intrapericardial, had passed anteriorly to the right auricle, becoming firmly adherent to it, and had then pushed its way through the pericardium, lying beneath the sternum, finally perforating the latter through a hole half an inch in diameter. The chief mass of the aneurysm had spread to the right, causing the large rounded swelling seen clinically, under which, at the post-mortem, the pericardium was firmly adherent to the chest wall. Beyond the aneurysm the aorta showed patches of syphilitic aortitis, but was otherwise normal.

The obliteration of the pericardial cavity, presumably as a result of his attack of rheumatic fever in 1914, had evidently prevented an intrapericardial rupture, as is common in this class of aneurysm. The aneurysm had pushed the anterior half of the pericardium against the chest wall, caused the two to adhere, and had then perforated externally through the pericardium lying beneath the sternum, and finally through the sternum itself.

# FAMILIAL NEURO-SYPHILIS WITH APPARENTLY HEALTHY PARENTS.

By A. G. DUNCAN, M.D. LOND.

THE following personal and family record illustrates several interesting points which bear on congenital syphilis.

D. X., the patient whose illness led to an investigation of the other members of her family, came under observation in 1921, when she was 22 years old. In the previous August, on ceasing work for the summer holiday, she had complained of general malaise, occasional vomiting, and slight deterioration of memory. The first sign of any serious ill health was a severe and prolonged epileptiform fit, after which she was somewhat confused for a few days, and was then apparently well. On admission to hospital in November, 1921, she was mentally dull, lacking in attention, and emotionally unstable. The only physical signs of disease were a slight tremor of the lips, marked sluggishness of light reaction in the left pupil, and absence of tendon reflexes. Shortly after admission she had a series of fits resembling status epilepticus, and her mental condition considerably deteriorated. A positive Wassermann reaction in the blood, and the presence in the cerebro-spinal fluid (C.-S. F.) of 105 cells per c.mm., a positive Wassermann reaction, and the paretic type of colloidal gold reaction confirmed the diagnosis of dementia paralytica.

Her parents, brothers, and sisters were seen and examined clinically and serologically for any evidence of disease. The following notes give the record of the whole family.

*Family Record*.—R. X., the father; no symptoms; physical examination negative; W.R. negative in blood and no abnormalities in C.-S. F. on two occasions.

D. X., the mother; no symptoms; physical examination negative; W.R. negative in blood and C.-S. F. normal on two occasions. She had seven pregnancies:—

1. A., male, born 1891. Died in a mental hospital of dementia paralytica at age 26.
2. B., male, born 1896. No symptoms; physical examination negative; W. R. negative in blood; C.-S. F. normal.
3. D., female, born 1899. The patient described above.
4. F., male, born 1900. No symptoms; physical examination negative; W. R. negative in blood; C.-S. F. normal.
5. S., male, born 1902. Occasional headaches since receiving a blow on the head when 10 years old. Physical examination negative; W.R. positive in blood. C.-S. F. 12 cells (small lymphocytes) per c.mm., protein not in excess, W.R. negative, colloidal gold curve 001110000.
6. Miscarriage at sixth week in 1904.
7. H., female, born 1906. No symptoms; physical examination negative, W.R. negative in blood; C.-S. F. normal.

S. was given mercury and potassium iodide by mouth and courses of intravenous injections of novarsenobillon. C.-S. F. was completely normal when next examined, three months later, and has remained so. Positive W.R. in the blood persisted for 10 months, after which it remained negative. D., the patient who first came under observation, died in May, 1923.

## *Commentary.*

There are several points of interest in this family record. The previous histories of the parents gave no indication of syphilitic infection, and the father denied having had a primary sore. It is difficult to imagine that the three children suffering from neuro-syphilis had unrecognised primary infections in childhood, so, in spite of the absence of any evidence of syphilis in the parents, it may reasonably be assumed that the disease was in each case inherited. Although there still appears in some text-books the assertion that an ovum may be infected by a spirochæte conveyed in a spermatozoon and so give rise to a syphilitic fœtus, it is practically certain that inherited syphilis is always an infection conveyed by the mother to the fœtus. In the case under consideration it is probable that the mother was infected by the father, and that their resistance or relative immunity prevented any clinical manifestations arising from the infection, though when this was conveyed to the children neuro-syphilis developed. The development of the disease in each case in the central nervous system may be an illustration of the preference for the nervous system which has been thought to indicate a special strain of spirochæte, but another possible explanation is that the nervous systems of the infected children were less resistant to disease than those of their parents. In this connexion it is interesting to note some evidence of inherent instability of the nervous system in the family of the mother, five of whom—father, two uncles, and two brothers—died in mental hospitals. There is lacking also that attenuation of virulence so often observed in the results of pregnancy in a syphilitic woman; the infection occurred only in alternate children, the second, fourth, and sixth having apparently escaped.

The result of treatment of the patient S. is not without interest. He certainly had some form of neuro-syphilis in its earliest stage—before the onset of symptoms or the presence of physical signs—and if left untreated he might have proved to be a case of dementia paralytica. So far, treatment has been successful in that the serological tests have remained negative for over two years. This record emphasises the importance of making a complete clinical and serological examination of the brothers and sisters of a patient found to be suffering from inherited syphilis.

I am indebted to Dr. George Riddoch for permission to publish these cases, and to Dr. P. Spark for notes confirming the diagnosis in the case of the patient A. X.

THE name of Mr. Townley Clarkson's collaborator in the article on Gonorrhœa in the Male, which appeared in THE LANCET of Jan. 10th, p. 110, should read W. J. Dwyer, M.R.C.S. Eng., Clinical Assistant, Venereal Diseases Department, London Hospital.

# Medical Societies.

## INCORPORATED ASSOCIATION OF HOSPITAL OFFICERS.

A meeting of this Association was held on Jan. 15th at 28, Bedford-square, W.C., with Mr. G. H. Hamilton in the chair, when Mr. Somerville Hastings opened a discussion on the

### Nationalisation of Hospitals.

He admitted frankly at the start the enormous service which the voluntary hospitals had rendered, not only to diseased humanity, but to medical science in general. Besides cultivating the spirit of help and hospitality they taught one most valuable lesson—that of coöperation in the treatment of disease. A patient in a large voluntary hospital had at his service not only physicians, surgeons, and specialists in all kinds of disease, but also those skilled in treatment by X ray, radium, light, and other special branches of curative medicine, as well as registrars, pathologists, and chemists. The success of hospital treatment was largely due to the scientific team-work of all these members.

Now the chief criticism of the voluntary system to-day was that this cooperation hardly extended outside the four walls of any one hospital. Each hospital is a law unto itself, and the public health suffered because the hospital worked as an isolated unit and did not keep touch with other hospitals and medical institutions in its neighbourhood. One hospital would have a long waiting-list while another near by had half its beds empty. They kept little touch also with the general practitioner, who at present sent patients to hospital without a very accurate history and received them on discharge without a detailed record of their progress and treatment. It would be much better if the patient's doctor could remain in touch with him while he was in hospital, and still better if he could take some share in his treatment. Another disadvantage of the present system was that public-spirited men and women had to dissipate so much of their valuable energy in inventing fresh schemes for collecting halfpence.

### *Shortage of Beds.*

Nevertheless there were not too many hospitals, but too few. Hardly anyone realised how urgently the country needed more beds at the present time. The recent recommendation of the Voluntary Hospitals Commission for an increase of 10,000 beds greatly under-estimated the shortage. The necessary average was generally recognised to be 2½ beds per 1000 population; this meant 95,000 beds for our 38,000,000. Since, excluding the Poor-law infirmaries, the number available was only 50,500, the beds required were 44,500. The reason why the waiting-lists did not show this number was that doctors only sent their very urgent cases, as the others had little chance of entering within a reasonable period. For many reasons this demand was likely to increase in the near future. The health of town dwellers was inferior to that of country dwellers, and more and more of these were drifting to the towns. The increase of unemployment and the lowering of the standard of living was also making for more ill-health, and the housing shortage would make it more and more difficult for people who were seriously ill to be treated at home. Meanwhile the increasing complexity of medical science rendered institutional treatment indispensable for many patients if the best were to be done for them. The general public was becoming more interested in its health and less inclined to look on sickness as an act of God.

### *Decline of the Voluntary System.*

The voluntary system had depended in the past on three things—voluntary subscriptions, voluntary medical service, and voluntary management. The last few years, however, the voluntary hospitals had been receiving an increasing proportion of their revenue from public funds. According to the late Sir Napier Burnett, the voluntary hospitals of England and Wales, excluding London, received in 1920 14·36 per cent. of their ordinary income from public authorities. Now that patients were paid for from public funds doctors who gave their help freely in the past were beginning to demand remuneration, and rightly, because the admission of middle-class paying patients was robbing them of much of their private practice. Voluntary management alone remained. Since the war the whole voluntary system had been in the melting-pot, and its history was a record of frantic attempts to save the sinking ship. Enormous lottery schemes, contributory schemes, payments by in- and out-patients, and grants from the Exchequer had been employed, and now the Voluntary Hospitals Commission were recommending a grant of two million pounds to equip more beds. This was not in itself objectionable if the hospitals used it to give help to all those in real need (which they did not always do at present), but if public funds were used the public must be represented both on the allocating committee and on the bodies that used the money. Voluntary levies from the employees in various factories did not benefit only those who subscribed, and a tax that fell on everyone in the district, well or sick, would be much fairer. Also, what with compulsory insurance, friendly societies, trades-unions, and the like, the wage-earner's income was in danger of being so reduced as to make a proper standard of life impossible, and he was therefore more likely to become a patient than he was before. Patients' payments were even more objectionable, as the very poor hated to admit that they could not pay and the better-off classes felt that if they paid what was asked, however nominal the sum, they were not accepting charity. The real pauper class for whom the hospitals were founded were thus being excluded, and it was among these that disease took the firmest hold and acquired fresh virulence to attack others.

### *Future of the Hospitals.*

What was required to-day was a completely organised medical system throughout the whole country to give the best possible service free to everyone who wished it, and in each locality the hospital must be the centre of this scheme. Villages would have receiving centres with two or three beds; small towns would have local or cottage hospitals, and cases requiring special treatment would go to the county hospitals in large town or cities. National hospitals where medical students could be trained and exceptionally difficult cases treated were needed in London, Edinburgh, and other University centres. Each hospital would be the health centre of the district it served and be in constant and close cooperation with every other. There were already at Barry, Widnes, and Bradford hospitals controlled, supported, and administered by the local health authorities. Since these authorities were responsible for dealing with tuberculosis, venereal disease, and the treatment of school-children, it was essential that they should be able to control a certain number of beds. This change could only come gradually. First the Poor-law infirmaries should be taken over and run as first-class free hospitals with full visiting staffs, independently of the Poor-law. The voluntary hospitals should have the option of: (1) being taken over by the health authority; (2) remaining as they are; or (3) accepting a certain amount of subsidy with proportionate public representation. The deficiency of beds that would still remain could be made up by fresh building and by extensions. Country mansions that came on the market could be turned into convalescent homes to relieve the stress on the hospitals.

The mass of people were not content with things as they are, and no part of the Labour Party's programme received more applause than their hospital policy. The development of a National Hospital scheme was inevitable within 10 or 20 years, and his audience had two courses open to them. One was to resist this movement and have to submit to a hurriedly conceived inadequate system like that of the National Health Insurance Act; the other was to direct and educate the popular will so that the new order when it came would retain all the best features of the present voluntary system.

### *Discussion.*

Mr. R. H. P. ORDE (British Red Cross and Order of St. John) denied that the voluntary system had failed to "deliver the goods." It had proved its worth in the war, and if the hospitals were given the money they would continue to provide the admirable service they always had. Also, without the slightest intention of reflecting on the Bradford Hospital, it was obvious that even with unlimited funds at its back it could not compare with any of our voluntary hospitals. The hospitals might have been founded for the poorest classes, but except for the "middle class" the patients treated there came from precisely the same social ranks as they did a hundred years ago. The argument against the voluntary system that its hospitals had relied to a large extent on public funds was so ungrateful as to be incredible. These grants were payment for special work done; surely the hospitals had every right to them.

Mr. G. P. BLIZARD (Secretary, Public Health Advisory Committee of the Labour Party) said that he yielded to no one in admiration for the work that the voluntary hospitals had done for the country. Hospitals had been performing State functions all down the ages. No price was too high to pay for the treatment of disease, and hospital administrators should, like the Labour Party, think boldly of the net cost of their enterprises rather than of their actual outlay. The axiom "Penny wise, pound foolish" was truer in this branch of life than in most others. Nevertheless hospitals needed more coördination, as was shown by Sir Napier Burnett's illustration of three hospitals within a few miles of one another, one of which had empty beds, while the other two were overcrowded. Sir Napier Burnett had proposed to smash the hospitals into line, but the speaker wished to persuade them into line. It was a calamity that so many people should be unable to enter hospital. Treatment was much better in institutions, and a system of graded institutions should make it possible to treat all those people who were turned away through lack of coördination. The nation's requirement of beds, according to the finding of his Committee, was from 2–5 beds per 1000, and this brought the figure higher than Mr. Hastings's estimate. The deficiency was nearer 102,000 than 45,000, and the estimated cost £53,000,000. This would not come from voluntary subscriptions nor from contributions. Something far more radical must be done about the hospital shortage. The view of Labour was that it was bad for people to be so wealthy that they could afford to give large sums to hospitals, and that no self-respecting nation would let its hospitals depend on gambling lotteries and flag days. The distribution of wealth was at fault. All forms of contributory maintenance, like the compulsory health insurance, were in the nature of regressive taxation and fell most heavily on those who benefited least. The money for the hospitals should come from those who were suffering from being too wealthy. Cottage hospitals could be adapted from existing cottages or pairs of cottages in the same way as cottage baths had been in the North of England. The change would come more quickly than the 15 or 20 years Mr. Hastings gave it. The working of the Insurance Act had disclosed facts about ill health that were irresistibly compelling the country to accept State control of all hospitals. The question was not now "Can we afford it?" but "Dare we not afford it?"

Mr. E. W. MORRIS (House Governor, London Hospital) admitted that hospitals were crowded too closely together and unsystematically distributed. This was because they had originally been founded for sentimental rather than practical reasons. While admitting the faults of the present system, however, he said there were other ways of correcting them than handing them over to the Government to manage. Everything the State had done for the poor since 1601, when the Poor-laws were introduced, it had done without sympathy. The Government's heartless handling of tuberculous patients was a good example; governments were too heavy-handed and inelastic to deal with such a personal thing as sickness. They could give valuable help to research, but an office stool was not the place from which to treat a sick child. A great advantage of the voluntary system was its elasticity, and in times of epidemic a hospital could throw open all its beds to patients of that particular disease without filling up forms and waiting for Government approval. Still more valuable than this, however, was the guest-house spirit of the voluntary hospital, which the infirmary did not possess. The first sign of improvement in the reorganised infirmaries was their adopting the name "hospital," but they needed the hospital spirit as well. He did not see why a health authority should be entitled to representation in return for grants of money; it was simply paying for service rendered. With all the faults of the voluntary system one day's voluntary treatment was better than a thousand years in the infirmary.

Mr. H. E. JENNINGS (Secretary, Chelsea Hospital for Women) said that if hospitals and general practitioners had to make compulsory reports to one another it would come very hard on both sides. Nowadays any questions that one asked the other were answered. The country, it was true, needed beds, but we were told that we were on our financial beam-ends and needed every penny we could spare for our industries; to impoverish the country was simply to create a demand for more beds still. Nationalisation would not only be very expensive, but would destroy the voluntary spirit, and the public should be told what they might expect if it were introduced.

Dr. ETHEL BENTHAM (Labour Party Executive and Margaret McDonald Hospital) complained that the voluntary system did not provide funds enough for the necessary accommodation, and that it was impossible to get a patient into hospital except an urgent or operation case. Half of these unsuccessful patients refused to go into the infirmary and had to be treated, for the most part quite unsuitably, at home. The infirmaries, although greatly improved, still left much to be desired. The whole Poor-law system must be revised. The voluntary system had done good work and been a necessary phase of advancing civilisation, but it could not finance a real preventive service such as we needed.

Mr. J. MCKAY (Hospital for Sick Children, Great Ormond-street) feared that Government control would ruin the hospitals as it had the telephone system. If the voluntary system were given the funds it could meet all demands, and Government control was not the cheapest way to get the results desired. The present system needed coördinating by a more efficient medical service, and he saw signs of a revolution in the health services of London which would lead to the desired reforms. When the Poor-law came into the melting-pot the Insurance Acts should go too; they worked very unfairly on the voluntary hospitals, who treated gratis many patients who paid health insurance. Hospitals had every right to recover this expenditure from the health authorities, who had plenty of money.

Mr. W. H. REED (Hospital Saturday Fund) said that the worker contributed to the voluntary hospitals with a willing heart. The patient of the State-controlled infirmary was charged more than he would be in hospital and was pressed till he paid; he was paying a poor-rate already and was taxed heavily for his treatment as well. The voluntary system came out of the war impoverished by the work it did; a grateful public had wiped out that debt and would do this one.

Mr. HASTINGS, in replying to the points raised in the discussion, said he did not blame the hospitals for accepting public funds. He was pleased, for this was the thin end of the wedge. Also nationalisation was not evil in itself. We had tried to fight the war without it, and economic necessity had compelled us to nationalise one service after another. It was better that what money the nation had should be spent on hospitals instead of on mere luxuries, as so much was. The Poor-law and National Health Insurance were bad because they were framed only for one class; a really efficient service must be free and open to all. The measures against tuberculosis were bad because no government had spent enough money; the State handling of venereal disease and maternity welfare was good. It would not be impossible to carry over into nationalisation the friendliness that distinguished the voluntary system, for there was no reason why the people of goodwill who had built up this spirit should withhold their services when the hospitals were administered by the State.

## SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.

AT a meeting of this Society held at 122, Harley-street, London, on Jan. 18th, with Dr. F. R. WALTERS, the newly-elected President, in the chair, a discussion on

### OCCUPATIONAL THERAPY

was opened by Dr. J. E. CHAPMAN, who said that it was first necessary to define "occupational therapy," as all kinds of things were included under that term at present. He would define it as work provided to enable the patient to recover his health more rapidly than would otherwise be probable and to return him to his ordinary conditions of life mentally and bodily sound. Other considerations were secondary. The first work of this kind was introduced at Frimley and consisted of carting stones and small works in the garden, &c., without any economic considerations, but this soon changed to useful employment, and now the problem was still further complicated by the idea of vocational therapy. Every disease had its own problems of occupational therapy and it was impossible to legislate generally.

### *In Pulmonary Tuberculosis.*

The psychological effect of occupational therapy, said Dr. Chapman, was much more important than the bodily effect. Patients were in institutions for long periods with nothing to do and were bound to be bored. The sanatorium had been described as "the breeding ground of loafers," but well-organised occupational therapy produced a contented community. At Woolley the patients did not work for their own benefit only; they received no money, but were made to feel that every ounce of energy they put into the work meant more cash to enable another man to be installed in the settlement. Physical benefit also accrued from occupational therapy; patients who had no exercise but walking, which usually meant a good deal of loafing, were liable to return to their homes soft. Very many of them broke down within a short period, and hence the idea arose of altering their occupation, usually to some country job, regardless of the fact that this would mean an inadequate income, so that soon they would drift back to their old work. Then arose the practice of training patients to some occupation suitable to their condition, but when they were turned out into the world they were almost always incapable of making good in it. Before they had always been employees drawing regular wages, but employers did not want them after discharge, and they had no notion of the commercial side of business and so failed alone. The speaker was sure that many of them broke down more because of the difficulties and worries of employment than from their home conditions. It was essential to arrange employment for them, as, for instance, in the "Spero" leather works where 23 men from the King George V. Sanatorium at Godalming were working; there had been no real breakdown since its inception. A certain Jewish institution had reduced its percentage of relapses from 50 to 15 by a well-organised and almost self-supporting workshop. Training must be arranged with the view of putting a man in some specific job in some specific place. A skilled trade like leather work was only suitable for about 5 per cent. of patients; for the 95 per cent. the "factory in the fields" at Leeds had offered what seemed a satisfactory solution. Here the men were employed on unskilled labour for as many hours a day as they were fit for, and the scheme was paying its way. Undoubtedly some form of unskilled work of the repetition order was best for the majority of tuberculous patients, and the sale of materials would always pay the wages of instructors and incidental expenses.

### *In Mental Disorder.*

Lieut.-Colonel J. R. LORD said that it was impossible to get far in occupational therapy before coming across psychology, and to learn psychology it was necessary to go outside the usual text-books. "No man is born into the world whose work is not born with him" was a remark of James Russell Lowell, but many were uncongenially employed and their energy ill-directed and unproductive. That regular and congenial employment was essential to health and happiness had long been admitted, but it was only recently that occupation had been recognised as a factor in the causation and treatment of disease and mental unhappiness. Applied psychology would solve many social problems, most of which were due to the damming back of the basal instincts. Many physical disabilities led to a handicapped mental state—i.e., one in which the outflow of the psycho-physical energy was curtailed by physical or minor mental disabilities or both. For the prescription of vocational therapy it was essential that the physician should have a thorough and complete knowledge of the patient physically, mentally, and psychologically, and the requirements of the occupation must be correlated with the individual. The effects of the work on the patient should be systematically observed and noted, particularly with reference to his weight, appetite, bowels, sleep, personal appearance, posture, gait, &c. It was important to see that the amount of sleep obtained was proportional to the amount of energy required for the occupation. Occupational therapy was a powerful instrument in giving new interests, directing the psychophysical energy into new directions and breaking up bad mental habits.

There was, said Colonel Lord, no fixed boundary line between mental handicapping and mental disorder. It was difficult to tell whether there were a real organic change or merely a long suspension of function, but only a certain amount of re-education was possible. The best methods were simple handicrafts, mainly automatic movements. The basis was to try to get the muscles and physiological side going and to base an orderly habit of thought on the orderly movements with which it was coördinated in health and from which it was originally derived. The best form was a simple handicraft such as picking, tearing, or fraying, with materials pleasing to the eye. The work might be carried on quite automatically and unconsciously at first, but the patient became more collected, and later should be occupied in the work with which he was most familiar and could do most easily; the mind should be encouraged to flow along the channels of least resistance.

Occupational therapy, aided by sympathy and suggestion, was something more than diversion; in the confused and mindless there was nothing to divert. Diversion was needed for depression, anxiety, and certain neuroses where some control and ordered thought were retained. Vocational therapy was often harmful in these cases, as it worried the patients more. Simple games, exercises, and occupation calling only for muscular effort only helped them to sleep and digest. True vocational therapy was suitable for all convalescent cases, and helped them towards self-confidence and a new strength. Often their old occupation was gone and they had to face a new world and conquer it as best they could.

The same principles applied in chronic cases, although the ultimate objective was different. They were taught to employ themselves because it encouraged orderly conduct and induced content, helped the patients to maintain self-respect and individuality, put a brake on their deterioration, and stimulated a more normal flow of ideas. All institutional patients who had a particular form of mental handicap were liable to develop bad mental habits and a sense of inferiority, to become irritable, suspicious, antagonistic and often anti-social, and to fall an easy prey to quack doctors and agitators. They must be taught to work independently and not be pulled along by others. The work must be a united effort on the part of the doctor and social worker, helped when needed by an industrial psychologist or some such organisation as the National Institute for Industrial Psychology, which concerned itself with the problem of how to make the most of the individual and his work. A patient would take more interest in his work if it were useful and remunerative. Occupational teaching was best carried out in well-planned, well-ventilated classrooms.

*Some Sanatorium Experiments.*

Dr. Jane Walker described the occupational therapy tried at the Nayland Sanatorium, confining herself to work done by patients while actually in the sanatorium. The first enterprise was lace-making, which faded away after some years of success. French gardening was more and more modified until it became simple English gardening; it failed because it was unsuitable for the tuberculous; it was far too monotonous, and the "ring" was too close to allow of obtaining a market. They were now running a weekly lorry to town with farm produce very successfully, but this was done purely as a business project. Embroidery involved an expensive plant and the work was too intensive; patients were not interested in work when it took a day to do an inch. Dress making failed because one after the other had to give up the work and orders could not be carried out to time. Tailoring was even worse. Toy-making and boot-repairing were successful and were still carried out, but the latter did not pay its way. When the Government scheme for ex-Service tuberculous men was instituted, jewellery-making, furniture repairing, polishing, and watch and clock repairing were begun; these were still going on very successfully. They were now trying definite teaching of handicrafts, leather-work, simple stitching, &c., and, most recent of all, the making of bedroom slippers, which seemed to promise well. Handicraft met with much initial opposition but was becoming more popular. A first principle in employing tuberculous patients was that all possible situations about the sanatorium, such as maids, nurses, clerks, garden and poultry workers, should be filled by ex-patients, preferably from some other institution. Farm workers were best not drawn from ex-patients as the work was too heavy for them. No industry would pay if run entirely on tuberculous labour Occupational therapy we must have, and if we failed with one method some other must be tried if the sanatoriums were not to turn out lazy and unemployable people.

Dr. Esther Carling limited her remarks to the employment of ex-patients in institutions. This was the thing that seemed most valuable and worth while. Headway had been slow, and superintendents might help much by raising the question before their governing bodies. Twenty-eight out of 82 of her staff were ex-patients, and this represented the average they had maintained for some years. The quality of service was excellent. The disadvantages of breakdown and sick leave were obvious, but were insignificant beside the loyalty of these employees, a factor which few people outside recognised. No superintendents who had tried ex-patients ever went back on their choice, for they discovered its great psychic value. It was better than any kind of handicraft. Nevertheless, a combined effect was necessary to establish the principle firmly.

Dr. J. Watt attested the therapeutic value of work, not only in all kinds of ailments, especially the neuroses, but also to healthy people. A gospel of work preached by some eminent publicist would cure many social ills.

Colonel Lord mentioned the part played by the education officers and psychologists of an institution for neurotic soldiers in allotting men to therapeutic work suitable to them, and giving warning when an occupation was unsuitable for a certain patient.

Dr. Vere Pearson stressed the value of walking, and said that occupation should not be allowed to exclude it. Sport was not only a valuable form of exercise but helped to prevent and cure tuberculosis. He had encouraged some of his patients to play on a putting green as an exercise.

The President gave warning against putting patients to work too early, and stirring up mischief in the chest and the "gambling spirit." Occupation was useful for patients still in bed with slight feverishness.

Dr. F. J. C. Blackmore pleaded for more coöperation between superintendent and tuberculosis officers, and for caution in founding new workshops.

Dr. Niven Robertson mentioned the frequent breakdowns, and Dr. W. Goodchild the low morbidity of ex-patients employed on institution staffs.

Dr. W. C. Fowler advised that the patient should be told the definite time he was likely to be kept in bed. When he knew this he used his time; when he did not he was inclined to loaf.

Dr. H. O. Blanford said that one of the chief obstacles to the employment of ex-patients was the opposition of the healthy employees.

Dr. J. D. Stevens deprecated the misinterpretation of the clinical conception of graduated work by practitioners, who graduated to hold the patient's condition stationary and not to improve it.

Dr. Jane Walker agreed with Dr. Carling's experience of the value of staffing sanatoriums with ex-patients: 120 of her staff out of 150 were ex-patients. Their employment outside institutions, however, was an insoluble problem.

# Reviews and Notices of Books.

## Carbon Monoxide Poisoning.

*L'Oxyde de Carbone et l'Intoxication Oxycarbonique.* By Maurice Nicloux, Professeur à la Faculté de Médecine de Strasbourg; Membre correspondant de l'Académie de Médecine. *Paris*: Masson et Cie. 1925. Pp. 256. Fr.22.

Dr. M. Nicloux may be congratulated on an excellent monograph. He states that he has been working on CO poisoning for many years and internal evidence indicates that he is a master of his subject. After the natural, technical, and laboratory sources of carbon monoxide have been reviewed, the chemical and physical properties of the gas are discussed and also its compound with hæmoglobin. The behaviour of hæmoglobin in known mixtures of oxygen and carbon monoxide under a variety of conditions and at varying temperatures is studied, and Dr. Nicloux shows experimentally that hæmoglobin in its combination with oxygen and carbon monoxide obeys the law of mass action. A large number of experiments are given on animals under varying conditions to correlate the percentage saturation of the blood with carbon monoxide and toxic symptoms, the author stressing the importance of what he calls the coefficient of poisoning, that is, the ratio between the percentage by volume of carbon monoxide in the blood and the percentage of carbon monoxide when the same blood is fully saturated. Treatment also receives attention. Some 70 pages at the end of the book are devoted to technique of the estimation of carbon monoxide and oxygen in blood and air, and the author critically surveys the various methods employed in such analyses, describing valuable apparatus of his own design.

Altogether an admirable little book.

## PÆDIATRICS.

*The Call of the Child.* By A. Dingwall-Fordyce, M.D., F.R.C.P. Edin., Physician, Royal Liverpool Children's Hospital. London: A. and C. Black. 1926. Pp. 83. 2*s.* 6*d.*

This little book differs in some respects from the majority of those which have appeared on the same subject, and serves to exemplify the great variety of standpoints from which the study of child welfare may be approached. Its virtue lies in its clear presentation of the essentials upon which all schemes of management and treatment of children should be based. Questions such as infant feeding, dietetics, and exercise, on which so much has been written, are discussed succinctly and with a view to simplification. The most original part of the book is that devoted to the problems of the management of the ailing or crippled child, containing many suggestions of great practical use. A book of this kind is of particular value when it carries the authority of so experienced a pædiatrist; it may be recommended as confidently to parents and workers in institutions as to the medical profession.

*Clinical Study and Treatment of Sick Children.* Fourth edition. By John Thomson, M.D., F.R.C.P. Edin., Consulting Physician to the Royal Edinburgh Hospital for Sick Children. London and Edinburgh: Oliver and Boyd. 1925. Pp. 912. 30*s.*

Dr. Thomson has achieved notable success in the revision of his well-known text-book. The fourth edition has received numerous additions which have decidedly increased its completeness, while the style and arrangement of the book, which have rendered the previous editions so attractive, have undergone little change. A few sections have been added which are entirely new; these include descriptions of the exudative diathesis, erythrœdema, and the care of deaf, blind, and crippled children. The greater part of the new material has been incorporated in the text of the previous edition. The author's presentation of the disorders of the nervous system has hitherto been a notable feature of this work, and a large number of the new additions refer to them. The sections on encephalitis, cretinism, mental defect, and spastic paraplegia have been rewritten, and those on many other nervous disorders enlarged. We note that Dr. Thomson adheres strongly to the view, which has frequently been assailed of late, that the majority of spastic diplegias are natal, not prenatal, in origin. New work has been included in the accounts of pneumococcal peritonitis, rickets, and congenital syphilis, to mention a few only. The doctrines of Czerny and Finkelstein will still render the chapter on food disorders somewhat formidable to the student, but the nomenclature has been to some extent simplified. This work has gained considerably in comprehensiveness, and is thoroughly up to date; it is now of a size which makes it equally useful as a text-book and as a book of reference.

*Feeding and the Nutritional Disorders in Infancy and Childhood.* Fourth edition. By Julius H. Hess, M.D. Philadelphia: F. A. Davis Company. 1925. Pp. 556. $4.50.

This book by Hess is already widely known in America and in this country. In the three years that have elapsed since the last edition was published a good deal of work has been done on the principles underlying the artificial feeding of infants both in health and disease, and especially on the quantities needed of the individual food elements. This newer work is incorporated in the present edition, and some excellent diet sheets for children from 6 months to 6 years of age have been added. The author allows more cereals than is customary in this country—the giving of cereal waters to artificially-fed infants from 1 month of age, and cereal flours from the third month, is recommended—but in the section on rickets the danger of excess of starchy foods is duly pointed out. Nutritional disorders, the classification of which is on the newest lines, are fully and lucidly dealt with in eight chapters, one entirely new chapter on cœliac disease being incorporated in this section. This is probably the most valuable and the most original part of the book. Other sections, dealing with rickets, spasmophilia, scurvy, acidosis, and the anæmias of infancy, are equally authoritative. The volume is well illustrated and may be warmly commended to the medical practitioner as dealing in a common-sense way with the ætiology and treatment of the nutritional disorders of childhood.

*Simplifying Motherhood.* By F. H. Richardson, M.D. New York: G. P. Putnam's Sons. 1925. Pp. 263. 7*s.* 6*d.*

The author of this book has propounded a scheme of infant feeding and management based upon a number of hypotheses which in a large measure run counter to commonly accepted ideas on the subject. His enthusiasm for breast feeding will meet with general accord, but he may justly be suspected of overstating his case, and it is doubtful whether the cause which he advocates is well served by his estimation of the relative chances of breast- and bottle-fed babies at 80 and 20 per cent., or by the extremely disparaging account which he gives of almost every method of artificial feeding. Briefly summarised, Dr. Richardson's contentions are as follows: Every woman can nurse her child; it is impossible to overfeed a baby fed at an interval of three or four hours; the correct estimate of the sufficiency of the breast milk is obtained, not by the test feed, but by giving a complementary feed and allowing the infant to satisfy itself, this procedure being accompanied by manual expression of any remaining breast milk. The child is allowed to feed for as long as it will, even beyond the hour; is fed twice in the night, whenever it happens to wake, until the habit of sleeping through the night is acquired spontaneously. It is emphasised that this routine must be supervised throughout by a physician. The author recognises that his views will not meet with general acceptance, and he appeals to medical practitioners to give his method a trial. Probably the majority of them will prefer to do this before placing this book in the hands of parents.

A Text-book of Pharmaceutical Chemistry. By Arthur Owen Bentley, Ph.C., Director of the Department of Pharmacy, University College, Nottingham; and John Edmund Driver, M.Sc., A.I.C., Lecturer in Chemistry, University College, Nottingham. London: Oxford University Press. 1925. Pp. 456. 18*s.*

This book has been written to meet the needs of those studying for the Pharmaceutical Society's diplomas and for degrees in pharmacy. It is divided into two parts devoted respectively to inorganic and organic chemistry. The first part is concerned almost exclusively with the inorganic substances of the British Pharmacopœia, while in the second part, which claims to give a systematic account of organic chemistry, particular emphasis is laid upon substances included in the Pharmacopœia. The introduction states the intention that the reading of the book should be accompanied by a study of the corresponding portions of the Pharmacopœia. Parts of the volume, indeed, consist of transcripts of the Pharmacopœia, and in other parts it merely amplifies and explains those portions of the Pharmacopœia which appear to require such treatment. The scrupulous following of the Pharmacopœia has resulted in a somewhat superficial treatment of many branches of the subject—for example, the chapter on carbohydrates gives but an inadequate idea of the chemistry of this highly important group of substances. The book may be useful to students of pharmaceutics.

THE LANCET.

*LONDON: SATURDAY, JANUARY 23, 1926.*

## TRANSFUSION OF BLOOD.

THE establishment of blood transfusion as a therapeutic measure in civil practice in this country dates only from the beginning of 1919, when war conditions were relaxed and those who had learnt the technique of transfusion were returning to their practices. During those seven years many thousand transfusions have been performed for a variety of conditions, and there is no reason for doubting that the results have given general satisfaction. It must be admitted, however, that on the medical side transfusion has definite limitations. Probably the great majority of medical transfusions have been done for pernicious anæmia, a disease which is never cured by this treatment though it may be held at bay for varying periods up to several years. The necessity for repeated transfusions is in itself confession of partial failure. The second prime indication for transfusion is hæmorrhage from a gastric or duodenal ulcer. The dictum that "patients never die as a result of hæmorrhage from a bleeding ulcer" may still gain some credence, but is gradually giving way before *post-mortem* room evidence. The fallacy of supposing that transfusion will encourage hæmorrhage by causing too great a rise in blood pressure is also losing ground. Transfusion has, in fact, proved its claim to be regarded as almost a routine measure in hæmorrhage from acute and chronic ulcers. In the first group it is more likely to assist in stopping bleeding than to encourage it, and accelerates the patient's recovery; in the second it tides the patient over a grave crisis and makes possible the performance of the necessary operation. Transfusion is also of proved value in surgery in combating the shock caused by any severe operation, such as partial gastrectomy or disarticulation of the thigh at the hip-joint, though it has become less often employed in the first of these examples as improved methods of anæsthesia have come into use. Another group of patients who may be definitely benefited by transfusion includes those suffering from chronic intoxication by pyogenic or other micro-organisms. The results of its use as a specific agent in these cases or in septicæmia by means of the principle of "immuno-transfusion" introduced by Sir ALMROTH WRIGHT and his co-workers in 1923, does not seem quite to have fulfilled the hopes based upon the laboratory work which suggested it; but the general effects of an ordinary transfusion have certainly been good. Opinion concerning the other less frequent indications for transfusion, such as melæna *neonatorum*, hæmophilia, purpura hæmorrhagica, and pneumococcal peritonitis, has not undergone any striking alteration.

Transfusion has probably been more freely used in hospital practice than outside, owing to the presence in hospital of greater facilities for obtaining apparatus and blood donors, but with a little forethought and organisation these factors do not present any real difficulty in any circumstances. Knowledge of the possible dangers due to the incompatibility of certain "blood groups" has been widely diffused, and misadventures attributable to this cause have been almost unknown. Probably very few transfusions have been performed without the preliminary tests which are known to be necessary. Doubt has several times been cast upon the precise truth of the statement that human beings can be rigidly divided into four groups, but although laboratory evidence may have fostered this doubt, clinical results have always tended to dispel it. In the department of technique no very striking advances have been registered, though several modifications of existing methods have been brought forward. The present issue of THE LANCET contains two contributions bearing on this side of the problem, and these will be seen to be to some extent in opposition. In the United States, the home of transfusion and the scene of many original investigations of the problems connected with it, discussion has always centred upon the relative merits of the use of so-called "whole blood" and of citrated blood. The advocates of "whole blood" have maintained that the use of citrate is to be held responsible for the minor post transfusion reactions which have often been observed and that it should therefore be entirely abandoned. Advocates of citration have then demonstrated that the reaction follows in almost the same proportion of cases whichever method has been used.

The truth of the matter is difficult to seize, but the probability seems to be that the reactions are due to more than one obscure factor in technique and to peculiarities in individuals even in one blood group. The importance of the matter may easily be exaggerated, for the reactions are scarcely ever harmful, and some observers believe that the therapeutic result is better when a reaction has occurred. A statement that, in an occasional instance, a reaction has proved fatal is difficult to substantiate, for other possible explanations cannot be excluded, and general experience suggests that some other factor was probably responsible. The position, however, is arguable, and Dr. ROBERT PLATT, of Sheffield, now makes a plea for the routine use of defibrinated blood on the grounds that the technique is simple and that no reactions ever occur. He regards it as an established fact that the minor reactions are all due to citrate. Citrated blood has proved, however, to be, in some hands, so entirely satisfactory for general purposes that it will not be lightly abandoned in favour of another method. The citrate has also a somewhat paradoxical value as a hæmostatic agent when introduced into the circulation, and its continued use may be advocated on this ground alone. Our second contributor, Dr. H. H. MOLL, of Leeds, seeks to introduce a modification of the usual citrate apparatus, in which he uses a "Record" syringe fitted with a two-way tap. The same idea is incorporated in the apparatus used by Dr. PLATT. The point of difference lies in Dr. MOLL's attitude towards the use of citrate, for far from questioning the propriety of employing it, he adds to the blood more than twice as much citrate as is usually considered necessary. Clearly no general agreement upon the pros and cons of citrate for transfusion has yet been reached. Disagreement, however, is not likely to prove so fierce in this country as it has done in America, for specialisation has not yet resulted here in the evolution of the "transfusionist" whose sole interest lies in the practice of this specialty.

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## MEDICAL RESEARCH IN 1925.

EVERY year an attempt is made to describe in small compass, in fairly balanced proportion, and in terms intelligible to those without special technical knowledge, the multifarious research activities being subsidised by the Medical Research Council. And every year, as the scope of these activities widens, the task of summarising still further in our columns the highly condensed annual report of the Council becomes harder, if, indeed, a mere catalogue of names, places, and subjects is to be avoided. Such a catalogue in its proper place, which is the appendix to the report, certainly indicates the size of the net cast by the Council, and the curious treasures hauled in sometimes from unexpected sources. Here may be found, for example, a formidable list of investigation committees. Their terms of reference include Statistics, Biological Standards, Bacteriology, Problems of Child Life, Eclampsia, Vitamins, Nutrition, Dental Disease, Clinical Uses of Oxygen, Injuries of the Nervous System, Mental Disorders, Hæmoglobin, Tuberculosis, Salvarsan, Canine Distemper, Radiology, Biological Actions of Light, Chinchona Derivatives and Malaria, Physiological Actions of Alcohol, Anæsthetics, Pituitary Extract in Labour, Status Lymphaticus, Physiology of Vision, Legibility of Type, and Miners' Nystagmus. The existence of these committees depends for the most part on the gratuitous service of experts who are prepared to criticise without bias experimental, statistical, or clinical findings and to correlate, where possible, without attempting to control, individual enterprise. Some of the committees arise from the collaboration with the Council of other bodies such as the Pathological Society of Great Britain and Ireland, the "Field" Distemper Council, the Lister Institute, the British Empire Cancer Campaign, or a section of the Royal Society of Medicine. An index of persons working in close relation with the Council contains nearly 700 names. Ninety-one institutions in Great Britain and Ireland have supplied hospitality to subsidised workers or material for investigation, not including 28 Government departments or 35 other bodies, at home and abroad, who have coöperated in various ways.

It is clear, then, that no brief general survey of the research in hand could be adequate. However, in the year under review, as on former occasions, The Lancet has been selected as a vehicle whereby much of the important work accomplished has been conveyed to the profession, and we may assume our readers to be familiar with the advances recorded in our columns. It is a different and more subtle affair for the general medical reader to assess at its true value any new discovery or technical method. The introductory chapter to the report of the Council, dealing critically with progress made in the study of immunity and infectivity, with the standardisation of biological substances, and especially with filter passers in relation to cancer, will be welcomed. For the development that excited most interest in all civilised countries during the past year was the publication in The Lancet of July 18th, 1925, of the two complementary papers on this subject by W. E. Gye and J. E. Barnard. It is unusual in a community as properly sceptical as the British scientific world for a preliminary communication still without independent confirmation to create such an impression. The Medical Research Council supply the reason; that the evidence brought forward by Dr. Gye resolves what they describe as the great paradox of medicine. Malignant disease occurs in all animals. Clinically and biologically it is an individual disease, maintaining its own characters whatever the scene of its being. Experimentally, however, it has hitherto been found impossible to propagate tumours except by a transference of living cells, and even then only to the same species. Experimental study, therefore, indicated a particularity or specificity of malignant tumours, while clinical and general observation had seemed to establish a uniformity and generality. Those who reflected on the subject from the clinical point of view were inclined to believe that some common causative factor must exist to link up the tumours of man and of the other animals. Those who worked experimentally tended, on the whole, to reject such a belief. If, however, the conclusion, supported by experiment, that the common factor for all malignant disease is a filter-passing virus, harmless by itself, while another chemical factor, without which no cancer can occur, is specific and is derived from tumour cells, is accepted, the anomaly disappears. The explanation offered is so attractive and fits in so well with each of the conflicting arguments that even as a theory it would have received attention; but here is no unsupported theory. Mr. Barnard had set himself the task of devising special means for demonstrating the presence of a very small organism by ultra-violet light. The success of this work and of other developments of optical technique allowed the presence or absence in given preparations of the virus, as demonstrated experimentally by Dr. Gye, to be detected independently. Thus each part of the work could provide a check on the results of the other. The possibility of this cross-checking of the results gained on either side and its uniform success greatly increased public confidence in the results obtained.

The repetition and extension of the work in this and other countries is the next step. Coöperation with the staff of the Imperial Cancer Research Fund at the Stroud laboratory, which adjoins the Council's farm laboratories at Mill Hill, is already established, and will be facilitated by the proposed transfer of Mr. Barnard's department of applied optics from Hampstead to new buildings at Mill Hill. The sum of £10,000 in instalments of £2000 a year, allocated to the Council by the trustees of the late Sir W. Dunn, is being used for this purpose. Even at this stage the Council record their belief that "this new work transforms our outlook on the general problem of the causation of cancer."

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## CARBON MONOXIDE POISONING.

Few substances have created such a wide interest in biology as carbon monoxide gas. It is of interest to the physiologist, to the pathologist and toxicologist, to the physician, to those concerned primarily with the welfare of individuals engaged in industrial and mining occupations, and to those responsible for the health of the general public. In a recent lecture[1] on the absorption and elimination of volatile substances through the lungs, Prof. Yandell Henderson speaks of certain aspects of CO poisoning as it now affects the lives of all civilised men. He deals especially with the potential impairment of health and efficiency which may result from the pollution of the atmosphere with small amounts of CO such as may be contributed by the exhaust gases of petrol engines in congested regions of traffic. It has been found in New York City that concentrations of 1 part CO in 10,000 parts air are rather common, and from experiments on the rate of absorption of this gas by the blood of individuals exposed to varying concentrations of CO in air, it has been concluded that breathing in such an atmosphere for periods of several hours will lead to a percentage saturation with CO of an intensity sufficient to bring about slight symptoms of oxygen want. In garages and assembling and repair shops the conditions are increasingly bad, and the workers suffer from asphyxial headaches and lack of mental control; whilst only last week Dr. A. G. G. THOMPSON drew attention in our columns[2] to unpleasant symptoms of similar origin which he has observed amongst engine-room workers on motor-driven ships. Drowsiness, headaches, vomiting, loss of appetite, and a yellow discoloration of the skin are amongst the results of engine-room life under the new motor régime, and this debility amongst men employed in motor works—whether ashore or afloat—obviously demands careful consideration.

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[1] Brit. Med. Jour., Jan. 9th, 1926, p. 41.

The number of recent fatalities in garages has made it unnecessary, perhaps, to speak of the dangers of exhaust fumes as an acute poison, though the public is clearly still ignorant of the dangers of the closed garage door. The rich mixture of petrol and air used in starting a car is particularly noxious because the fuel does not undergo complete combustion. Prof. HENDERSON points out that the maximum efficiency of the petrol motor is attained when the ratio of air to petrol (by weight) in the gas mixture is about 15 to 1. Under these conditions complete combustion occurs. Unfortunately, it is with richer mixtures that the maximum power is obtained, and with carburettors adjusted to deliver 12 lb. of air to 1 lb. of petrol this further power output is only obtained at the expense of 6 per cent. CO in the exhaust gases. In Great Britain, owing to the tax imposed being made directly proportional to the rated horse-power of the engine, less highly powered cars are employed and hence the factors making for serious atmospheric pollution are considerably less potent than in the United States. The question will naturally be asked: What evidence is there that the extremely small contamination of the atmosphere with CO such as may occur in congested traffic areas can bring about any prolonged or permanent impairment in the efficiency of people exposed to it? Before attempting to answer this question we must inquire more fully into the nature of CO poisoning. CLAUDE BERNARD was the first to suggest that the cause of death in CO poisoning was anoxæmia, and though for many years the idea was prevalent that the gas had other specific toxic effects on the tissues, J. S. HALDANE demonstrated conclusively by experiments on mice that CLAUDE BERNARD's contention was the correct one. The gas is not destroyed in the body; it can be recovered quantitatively from the expired air; and the well-known symptomatology of CO poisoning is due simply to the functional destruction of hæmoglobin for which the gas possesses a high affinity. The symptoms are similar to those of anoxæmia such as is found in mountain sickness. But whereas in the latter condition respiratory distress is a most prominent feature, in the anoxæmia of CO poisoning it seems to be the higher cerebral centres which are primarily affected, fainting being extremely common. This difference, as HALDANE points out, is due to the fact that the respiratory centre responds to changes in the *pressure* of oxygen in the arterial blood, and in even severe degrees of CO anoxæmia this may be normal.

The question may now be pertinently put that if in CO anoxæmia the oxygen pressure is normal but the functional hæmoglobin diminished in amount, why do not patients with degrees of anæmia far more severe than the functional anæmia resulting from CO poisoning suffer correspondingly acute cerebral symptoms of oxygen lack? The answer to this question follows from a consideration of the effect of CO on the dissociation curve of oxyhæmoglobin. The curve, as was shown by J. B. S. HALDANE, is shifted to the left, so that a given amount of oxygen can only be obtained under these circumstances by the tissues at a mean oxygen pressure considerably below that obtaining in cases of simple anæmia with the normal dissociation curve. It seems that in order to work efficiently the higher cerebral centres must be presented with a large supply of high pressure oxygen, and possibly the headache of anoxæmia is due to a protective capillary dilatation with extravasation of fluid from the blood to the tissues. There is, in point of fact, some evidence that this occurs in carbon monoxide poisoning. Our ignorance of the reactions of the cerebral capillaries, however, is profound; but it may tentatively be suggested that cerebral capillary dilatation and œdema occur in varying degree in conditions of anoxæmia, and that the petechial hæmorrhages which MOTT has described in the nervous system of those having died from CO poisoning are the extreme and pathological result of this call for oxygen by the master tissue of the body. In this connexion we must bear in mind the central and peripheral nervous symptoms—impaired cerebral control, disturbances of vision, peripheral neuritis—which frequently follow severe CO poisoning, and even mild poisoning if it be frequently repeated.

## A CASE FOR CLEMENCY.

AT the quarterly meeting of the Council of the Royal College of Surgeons of England held on Jan. 11th a further application from Dr. F. W. AXHAM, for restoration of his Membership, was considered, but the Council did not see fit to rescind the resolution of July 13th, 1911, removing Dr. AXHAM from being a Member of the College. This meeting had before it a letter from Dr. AXHAM, stating that he fully appreciated the necessity for members of the profession to abide by the rules of its governing body and for those who find themselves in any circumstances unable to do so to accept the consequences. Dr. AXHAM went on to submit that he has now been more than sufficiently penalised, and to beg the Council as an act of grace to restore his name in the Membership roll of the College. The Council of the Royal College of Surgeons of England have finally declined to do this, and the decision has not been lightly taken, for great pressure has been put on the Council from many sides to reconsider their decision, and it has only been the conviction that in this matter they were the trustees of public safety that has determined their course. The application for restoration of Dr. AXHAM's licence came before the Royal College of Physicians of Edinburgh on Jan. 10th, when by a resolution of the majority Dr. AXHAM's appeal was granted. Lord DAWSON has already voiced the feeling of a considerable section of the medical profession that favourable consideration "as an act of grace" should be given to Dr. AXHAM's reinstatement on the Register. The present position will not, we think, be construed as a change of policy in regard to the covering of unqualified practice, but rather as following the principle laid down in a memorandum, just issued by the Registrar of the General Medical Council, that, should a practitioner's name be erased from the Register, it may, after a lapse of time, be restored thereto, if that can be done with safety to the public. Presumably the legal difficulties to replacing Dr. AXHAM's name on the statutory roll have been removed.

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[2] THE LANCET, Jan. 16th, p. 157.

# Annotations.

"Ne quid nimis."

## DRUNK OR SOBER?

WITH the advent of the motor-car the problem of deciding in a given case whether a driver is drunk or sober has assumed an importance even greater than before. For the "one-'hoss shay" has been supplanted by the 20 or 40 h.p. engine, and the mentality of the horse, which by instinct avoids dangers and by training respects the footpath, no longer provides a buffer between the drunken driver and the innocent wayfarer on his route. In the days of horse traffic there was always at least one sober animal of the party. The drunken motorist, however, has no such assistance; he is a source of untold danger to all around him, and must be dealt with severely when guilty. It is in connexion with this subject that the paper read at the meeting of the Medico-Legal Society last Tuesday evening and reported on p. 207, is of especial importance. It records a practical attempt by Dr. G. Carter and Dr. H. W. Southgate, of Sheffield, to obtain definite data upon which the question of "drunk or sober" can be settled. Dr. Southgate shows, as the result of a series of experiments, that the curve of alcohol-concentration in the blood, after the administration of a known quantity of alcohol, is remarkably definite and constant in all cases. The curve of alcohol in the urine shows similar characters at a different percentage, so that, at any moment after the alcohol is taken, it is possible from an examination of the urine to make an approximately accurate estimate of the amount of alcohol in the blood at the same time. It is also possible within certain limits to say whether the alcohol-concentration is sufficient to cause drunkenness. Dr. Southgate's experiments are not only of interest from the physiological point of view, but they raise many problems which require investigation. The practical application of the method was dealt with by Dr. Carter, who reported a series of cases which had come under his notice as police surgeon, and gave particulars of some 25 cases, arrested for drunkenness, in whom the urine passed after arrest was thus examined for alcohol. So far the method has been tried in too few cases to warrant a final decision as to the extent of its value, but the results obtained are promising. It has at least a scientific basis and may prove a valuable help in this difficult problem. If it is to be really useful, the chronic hard drinker who can consume large quantities of spirits without change in demeanour would have to show a smaller alcohol concentration in blood and urine after dinner than that of the schoolboy who is excited and voluble after half a glass of port. Even now it might be of crucial assistance in certain cases. Thus a negative result would be an irrefragable proof of innocence, whilst one that was strongly positive would confirm the action of the police in making the arrest.

## THE NEED FOR SPECIAL HOSPITALS.

THE establishment of a new special hospital for the prevention and treatment of heart disease in children is noteworthy as showing the movement towards the specialisation of hospitals. At its opening Dr. I. Harris discussed at some length the position to-day in large cities like Liverpool. It has become necessary, he said, that particular types of cases should be in charge of people with special experience, and as a general principle this can hardly be gainsaid. But in a place like Liverpool the existing hospitals are not large enough to be split up into special units treating special diseases. In some cities a great many hospitals have been built, and this dissipation of effort has meant that few of these hospitals are large enough to undergo internal differentiation of function. In Manchester, for instance, as was recently pointed out by Mr. L. G. Brock, of the Ministry of Health, there are 14 in-patient institutions. The Royal Infirmary and the Barnes Convalescent Home contain 750 out of the total 2045 beds for the city, but six of the remaining 13 have 50 beds or less. There are two ear, nose and throat hospitals, with 24 and 11 beds respectively. Can such an arrangement really make for efficiency? As Dr. Harris pointed out, the only solution of the problem where so many institutions are in competition is to pool resources of bed, scientific apparatus, and medical staffs. Some coördinating organisation is an essential, and there is no doubt that such a body, with its bird's-eye view, would soon be convinced of the futility of a method by which every hospital tries to treat every disease. Reorganisation into specialist hospitals would be the inevitable sequel. From the medical point of view it is obvious that to bring all the nerve cases of Liverpool under one roof, instead of letting them remain scattered about the city in the care of physicians not specially interested in them, would be to increase the efficiency of their treatment. And not of their treatment only, for there would also be improved opportunity for teaching and research. From the economic point of view another advantage would be a unified appeal to the public for funds. This might not be welcome to those hospitals which are successful in the scramble to raise money, but Mr. Brock is certainly right in saying that the present multiplication of requests for alms is not only wearisome and distracting to the public but is against the complete success of any one institution.

There are good grounds, then, both medical and financial, for thinking that specialisation of hospital function is overdue, though any drastic or sudden alteration in the present arrangements would be regrettable, because continuity of tradition is really valuable. Collaboration, rather than unification, is the ideal, and it is an ideal that is making headway. So far as children's diseases are concerned there has long been in Liverpool a measure of what Dr. C. J. Macalister has called "the federation of hospital treatment." An organisation exists there whose function it is to ensure that children shall go from a central out-patient clearing house to the institution most suitable to their needs, and elsewhere the large general hospitals are already learning to shift their patients into annexes and convalescent homes as early as they can, and are beginning to regard themselves to a certain extent as in-patient clearing houses. The idea is sound as well as progressive, provided that the needs of the patient are never forgotten in the search for a symmetrical organisation. Specialisation amongst doctors has its disadvantages, and they are very real. But specialisation amongst hospitals has few essential dangers and its advantages are incalculable.

## LEAD AND ARSENIC IN TARTAR EMETIC.

A QUESTION of considerable interest is raised in our columns this week by Mr. E. Griffiths-Jones, chief chemist of the Public Health Laboratories at Cairo. How much lead and arsenic should be tolerated in tartar emetic? The harassed practitioner who naturally desires to know as definitely as possible what drugs he is administering will almost certainly say "none." According to Mr. Griffiths-Jones the manufacturers of tartarised antimony both in England and Germany appear to take a rather different view, which they base on the requirement of the British Pharmacopœia: "Yields no characteristic reactions for lead . . . [or] arsenic." The English firm say right out that all samples of the preparation examined by them contained about 0·1 per cent. of lead, whilst the German firm contend that their preparation does not contain lead and, further, that if it did, the B.P. tests would not detect it. This contention is not new. It has successfully been urged in the case of tartaric acid. The B.P. is a publication compiled under high medical authority and chemical advice. It cannot be admitted that the meaning of the requirement quoted above is that, when tested in a manner which cannot be expected to detect any but ridiculously large proportions of lead, no lead shall be found. It would surely be reasonable to suppose that "no characteristic reactions" means rather that the proportion of lead shall be so small that it cannot be detected by any recognised means. The amount of lead actually found by Mr. Griffiths Jones in one case exceeded 1 part in 1000 of the preparation. Taking the amount of tartarised antimony injected during a course of treatment for bilharzia as 25 gr. (1 6 g ) this would contain in such a case about 1/30 gr. of lead The amount is small, but its presence might cause and apparently has caused complications which are not normal effects of the administration of antimony. Having regard to the extensive use of tartar emetic in treating bilharzia in Egypt, it seems clear that no uncertainty as to its properties should be tolerated. Let lead be administered as one of its salts, if desired, not as an impurity of another drug

## TWENTY YEARS OF SANATORIUM WORK IN FRANCE.

Dr. Guinard has brought out an illustrated book[1] to sum up and so commemorate the results of over 20 years' work and experience at the three sanatoria (the author prefers the plural sanatoriums) of Despeaux-Rubod (1903), with 120 beds for men; Petit-Fontainebleau (1909), with 108 beds for women, and Fontenay (1913), with 152 beds also for women, grouped under the designation Bligny and situated in the Chevreuse Valley, 25 kilometres from Versailles and 40 from Paris The climate is pleasant and equable, and the surroundings ideal for the purpose The site, formerly occupied by an ancient château, has historical associations with England. The three sanatoria (for the middle- and working-classes) are all distinct and separate, not even in view of each other, for the medical director is strongly opposed to a "mixed" sanatorium, not because the tuberculous necessarily develop more than normally affectionate tendencies, but because the mingling of the sexes would introduce an element of disturbance into the calm and ordered routine of treatment, which would be always inconvenient and at times might become *dangerous*. In this spirit also the regulation is enforced that the exercise-period of the men is made to coincide with the rest hours of the women, and vice versa.

The architecture of the buildings and the allocation of services are entered into in great detail One noticeable point is that the balconies whereon the patients take their rest-cure are separate from, but in covered communication with, the cubicles and their 'lavabos" and facilities for personal toilette, into neither of which do the patients return until bedtime. The patients' day is spent between the balconies—*galeries de cure*—the large general room for reading, writing, conversation, and games, and the park and grounds with croquet, skittles, and other games Each patient spends on an average six hours in his or her rest-chair. The table appointments are met by coloured table-cloths to lessen the unsightliness of stains, separate serviettes and glasses, with racks for their reception in an annexe with toilet facilities The diet is generous and is based on the average of that required by a healthy individual plus one fifth The menus read temptingly, and perhaps descriptive food terms are more alluring in French than in English, but *saumon mayonnaise* would sound excellent in any language, and we can imagine few patients, whose caprices are the despair of every sanatorium cook, grumbling at a meal which, beginning with *bouillon au tapioca*, proceeds through each dainty stage—*galantine et jambon, jardinière de légumes, gigot, tarte aux fruits*—to its consummation, *café*. Truly, says the doctor, "good cooking is the best aperitif!" And the patient has good wine, too, if he so desire. The medical, nursing, and auxiliary services are carried out on a fairly lavish scale—100 of a staff for 318 patients

An important part of the volume is devoted to the lessons learned during these 20 years or so of sanatorium experience, and there is much of practical help in the matter of treatment, of tuberculin, to which the author assigns a definite though perhaps subordinate rôle, and of artificial pneumothorax The doctrine of auto immunisation through exercise and work, graded or not, is accepted with strict limitations, and the value of rest is emphasised and again emphasised. The man who delights in recording physical findings by the aid of coloured pencils and a multiplicity of dots, strokes, and demi-semiquavers will find everything to hand at Bligny, but, incidentally, the two chest diagrams in routine use there seem to us among the clearest and most convenient we have seen. The selection of patients is not too rigid, but it is Dr. Guinard's opinion that the period of treatment at a sanatorium is ordinarily too short, and he supports his opinion by some figures which, though not free from fallacy, seem to show that the after-results of treatment as expressed in terms of survival depend largely on the rest and the prolongation of stay in the sanatorium. The formation of a society of past and present patients, who meet annually at one or other sanatorium, with small subscription and numerous generous donations from the outside, enables the sanatorium to carry out some at least of the functions of a care association, and is a source of intense encouragement to those still undergoing treatment. The book is a splendid record of sanatorium work under a director whose heart and soul are in it, and might well form a guide to public and other authorities in this country who contemplate the erection and equipment of an institution which soars above the mere acquisition of a dismantled country-house and the throwing together of a few more or less dilapidated shacks with scanty staff and still scantier facilities for treatment At Bligny are sanatoria of which the personnel may be proud, served by a whole hearted devotion which spells success.

## THE EAST AFRICAN MEDICAL SERVICE.

THE Council of the British Medical Association has now expressed the definite opinion that members of the Colonial Medical Services "can no longer place any confidence in the fulfilment of the terms on which they are appointed by the Secretary of State." This conclusion has been arrived at on the grounds that certain things have taken place in the East African Medical Service which may prove a precedent for similar happenings in West Africa or in the West Indies; and the two alterations which are considered by the British Medical Association to be prejudicial to the position of medical officers are the possibility of transfer when a permanent domicile had been promised or assumed, and restriction of private practice when the opportunities for such practice had been put forward as an argument for joining the services We have received a copy of *East Africa*, a weekly journal published in London for the particular benefit of all having interests in East and Central Africa, and note therein a letter from a special correspondent in Nairobi which gives a view of the matter held by residents in Kenya.

"The action of the Colonial Office," he writes, "in amalgamating the several medical services of East Africa without notice to or the consent of the representatives of this colony is regarded here as a distinct breach of the promise that no steps towards federating the different territories should be taken without consulting Kenya's European inhabitants. This scheme also does not appear to be popular with the officers of our medical department, most of whom are comfortably domiciled in the colony, understand its conditions, and are naturally averse to transfer to distant, unfamiliar surroundings At the request of our elected members, representations are to be made to the Secretary of State for the Colonies about this decision. It is said here that the somewhat autocratic action already taken is due to the suggestions of some previously unheard-of advisory medical council."

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[1] La Pratique des Sanatoriums d'après les vingt premières années d'exercice des Sanatoriums de Bligny By Dr L. Guinard, Médecin Directeur One volume of 418 pages with 31 illustrations in the text and 12 plates Bibliography and Index. Paris Masson et Cie. 1925. Fr 60.

It is quite clear that if the medical officers in Kenya entered the service on the understanding that they were not liable to be transferred from Kenya, a change of domicile upon official orders will be a breach of their engagement. In the case of some colonial medical officers it is contended that when they accepted their positions they knew that they were liable to be transferred from area to area; such officers will, of course, be in a very different position from those to whom a permanent domicile had been promised. That unification of the Colonial Medical Services, which for many obvious reasons is desirable, implies the transfer of medical officers from one area to another seems certain, and those joining the Services under the new regulations will understand what the position is. For those who entered the Services under pledges of different things compensation will have to be found if they suffer individually, while the position at Kenya merits particular consideration.

## THE PROBLEM OF THE MONGOL.

FEW of the unsolved problems of psychiatry have excited so much interest and so many papers as that of the Mongolian imbecile. It is a problem that spreads into the realms of biology and anthropology as well as that of clinical medicine, and the fundamental ætiological question is how far the condition depends on the original composition of the ovum, and how far on the process and events of its development. The group is extraordinarily well defined and readily recognised; to examine one Mongol is to know all. Dr. R. M. Stewart, at a recent meeting of the Section of Psychiatry of the Royal Society of Medicine, gave a vivid word-picture of the Mongolian idiot that left no room for disagreement. The cranium is brachycephalic, small and smooth, with flattening of the occiput and, to a less degree, of the face. The well-known epicanthic fold is common in infancy, but is less common than an oblique fold of loose skin just above the upper lid. This formation appears to be due to a failure of the nasal bones to develop, which produces the short squat nose with depressed bridge and narrow forward-looking nostrils. The superior maxilla is also under-developed, and the palate is high and narrow; nasal catarrh and guttural speech commonly result. The prominent malar bones so characteristic of the racial Mongol are practically never seen in the Mongolian imbecile. The eyes are small and often squinted, and ptosis, nystagmus, and eye-rolling are common. Dentition is late and irregular. Highly characteristic are the fissures on the protruded tongue, developed after birth. Dr. Stewart, however, had seen these in other types of ament, several of whom were congenital syphilitics. The scalp hair is wiry and sparse, but the coarse skin of the body is covered with downy hair. The hands are curiously soft, with thick clumsy fingers, and the palmar markings are characteristic. The fingers and toes are often webbed and the feet are broad, short, and clumsy, and their blueness gives evidence of the heart disease which is so common in this form of idiocy. The spine is remarkably straight and the abdomen prominent, and the lax ligaments allow unusual mobility at the joints, so that the young Mongolian imbecile naturally sits cross-legged like a Turk. Herniæ are almost constantly present.

There is some evidence that the incidence is increasing: Dr. F. C. Shrubsall was able to give an analysis of 310 cases dealt with in London. Nevertheless, of pathology there is practically none; Dr. Stewart was unable to quote a single instance in which the nervous system had been examined really thoroughly post mortem. The smallness and under-development of the cerebellum described by most observers can be correlated with the shortened base of the skull. Dr. Stewart drew attention to the frequency of binucleated Purkinje cells in the cortex of the cerebellum; these are also very characteristic of congenital syphilitic aments. He had found no abnormalities in the blood picture during life in a series of 28 adolescent or adult Mongolians, but in half the series there was a lymphocytosis. There was a marked hypotension of the arteries in all but four, most of them giving a systolic reading below 90. As Dr. R. Langdon-Down remarked in the course of the discussion, it is hard to believe that so fundamental a change, involving practically all the structures of the body, epiblast, hypoblast, and mesoblast, could be due to any accident in development during embryonic life. Nor will any theory depending on some chance combination of the germ-elements account for the striking difference of the Mongolian idiot from all the other members of its own family, while resembling so remarkably all other Mongolian idiots, nor for the special position of the Mongol in the family. The parents are usually getting on in years, and in Dr. Shrubsall's series the father was very often younger than the mother; in 78 of the cases there was hereditary tuberculosis, and in 67 acquired psychosis or psychoneurosis. But on the whole there is nothing in the family history of the Mongolian idiot to suggest an inheritance worse than the average. In default of any evidence against the mother, Dr. Dora Berry and others have tried to incriminate the father as "sexually defunct," and Dr. Shrubsall drew attention to the frequent history of a use of chemical contraceptives. This would correlate with the appearance of the idiot at the end of a large family, as in the past it has most often been the parents of several children who have resorted to the use of quinine and other contraceptive drugs which might poison the developing embryo. This leads on to Jansen's theory of amniotic pressure, as the amnion would be most exposed to noxious influences at this period and its failure to develop might well compress the fœtus and arrest its development by raising the amniotic pressure. Jansen points out the similarities between anencephaly, achondroplasia, and Mongolian imbecility, and ascribes them all to this cause. The view that the condition is a Mendelian recessive and inherited as such lacks the evidence of adequate pedigrees. Perhaps the most-discussed theory of all is that of atavism recently put forward by F. G. Crookshank. For him it is the Mongolism rather than the idiocy which it is important to stress, and most observers agree that Mongol traits are often seen in the parents of the Mongolian imbecile. It may be that these act as determining factors; if such parents are going, for other reasons, to have an imbecile child the imbecility will take the Mongol form. The resemblance between the Mongol and the cretin has naturally produced an endocrine theory, but no pathological evidence has been obtained in support of this beyond the gonadal changes common in all cases of arrest of sexual development. The basal metabolism of the Mongol shows no abnormalities. There are, however, as Dr. W. A. Potts pointed out, people who believe that Mongolism can be prevented by administering thyroid and ovarian extract to the mother during pregnancy. It is difficult to understand how prophylaxis can be applied in any sense scientifically to so capricious a thing as Mongolism. A Mongol may be born of a perfectly healthy mother as her first, last, or intermediate child; both parents may be at the zenith of their reproductive power and subsequent children or even a twin may be perfectly normal. This very caprice has led to the syphilitic theory of its ætiology, as syphilis is known to act in just such an unaccountable way on mother and offspring, but neither Dr. Langdon-Down, Dr. Potts, nor Dr. Shrubsall were able to find any evidence for syphilitic inheritance in the majority of their cases.

It will be seen that the discussion merely served to intensify the darkness which surrounds this interesting subject. In many instances where several theories have been put forward it has been found that all had some measure of truth, but it seems unlikely on the face of it that a condition with such striking and well-defined features as Mongolian idiocy will prove to be the resultant of a series of ætiological influences.

## INSURANCE FOR EDUCATION

THE Educational Facilities Association has put out a scheme aiming to ensure the education of boys and girls in the event of their father's death, and all professional men, doctors among them, will find much that is attractive in the idea. Briefly, the scheme provides that for a small premium per term, in the event of the insured parent dying, the fees of a pupil at the school attended shall be met until the child is ready to leave. It is proposed that the premium shall be paid to the headmaster with the ordinary term fees, the first payment being made when the pupil enters the school. Preparatory, secondary, and public schools are included in the range of the scheme. A school, acting on behalf of a group of parents, will make the necessary arrangements, through the Educational Facilities Association, with an insurance company. At preparatory schools the benefits will be available for pupils up to the age of 14; at public and secondary schools up to the age of 18. Broadly speaking, the insurance can be effected for a premium of £1 on every £40 paid in school fees. It will be possible, in addition, to make special arrangements to insure a child's continuous education from preparatory to public school, and from public school to university. Those who are familiar with the organisation of Epsom College, and the splendid work that is done by the College in securing educational facilities for the children of dead or disabled medical men, where no provision has been possible for the purpose, will be in full sympathy with the idea. So long as the doctor's income is maintained he is able to support his children at school, but with the cessation of professional earnings in a large number of cases there is no income available to complete the upbringing of children in the manner which had been rightly planned for them by thoughtful parents. Any methods which will help to ensure for such children continuous education should appeal to all our readers. But while in accordance with this scheme they are paying a premium upon the school fees of children, they should support by subscriptions Epsom College, remembering that there will still be many children of medical men in whose case there will be difficulty in providing the premiums necessary to take advantage of the scheme of the Education Facilities Association.

## A VARIOLOUS STORY.

AT a time when it is difficult to induce the population of this country to be vaccinated, it is refreshing to hear of the enthusiasm shown by the natives of a village in Palestine for even more drastic measures. In an entertaining article which we publish on page 212, Dr. J. Macqueen tells how he investigated a case of small-pox in a village in Palestine and took elaborate precautions for its isolation. He satisfied himself that there was no other case in the village, but it was not long before he learnt to his astonishment that the local medicine-man had taken the opportunity to engage in a little prophylactic work and had already inoculated 300 children with variolous material from this case. The practice of variolation is extremely ancient, but it was not apparently until Lady Mary Wortley Montagu had her son variolated in Constantinople in 1717 and described the procedure in her correspondence that it became popular in England and America. The method adopted in Turkey was to remove the contents of a vesicle (not pustule) and introduce it by means of abrasion, incision, or puncture. The material obtained from an inoculated case was preferred. The usual Chinese procedure was to plug the nostril with cotton which had been saturated with a mixture of water and pustular crustaceous matter taken from the eruption of a small-pox patient. Less commonly, fresh crust was powdered and blown into the nostrils through a bamboo pipe. The method in vogue in Palestine is to puncture the skin with a thorn through variolous matter spread on the surface. These various practices could only have remained popular because their effects were milder than true small-pox, and the death-rate cannot have been more than 1 per cent. or it would hardly have been tolerated in England. Why variola inoculata should be milder than variola vera does not seem altogether clear. Although, admittedly, virus introduced under the skin may find itself in an unfavourable medium for propagation, it might have been supposed from the recent work of Dr. Mervyn Gordon that inoculation through the mucous membrane of the nose would produce severe infection. In the Palestine experiments it seems probable that not all the inoculated persons were treated with virulent material, although the activities of the local doctor in Dr. Macqueen's story had sufficiently sensational results. Of the 300 children inoculated death occurred in 8·8 per cent. of those which developed an eruption, and in 3 3 per cent. of the whole number inoculated. But it is not to be supposed that this traditional practitioner roused against himself the fury of an antivariolation society. On the contrary, he seems to have gained nothing but kudos for his work, and certainly did not lose repute by the month's imprisonment which was its sequel. As Dr. Macqueen concludes, this Dawaimeh epidemic will have served some useful purpose if it acts as a reminder that a disease, variola inoculata, was once extremely popular; that Jenner superseded it with a better—vaccination; and of the problem why small-pox is such a severe infection when naturally acquired, so much less severe when inoculated, and so wonderfully harmless when passed through the calf. (It will be recalled that Dr. Gordon [1] thinks it probable that the vaccinia virus contains approximately equal quantities of the elements which produce cow-pox and small-pox—an opinion which supports those of Jenner.) As for Dr. Macqueen's narrative, it is possible to read between the lines that a difficult and threatening situation was met by him with skill, tact, and firmness. Even with such enthusiastic variolophils it was no mean achievement to get them to parade for a third vaccination.

## THE NATIONAL INSTITUTE FOR THE DEAF.

THE National Bureau for Promoting the General Welfare of the Deaf was founded some 15 years ago by Mr. Leo Bonn, and for a number of years accomplished valuable work. Even during the war period when, like those of many similar organisations, its activities were half paralysed by the loss of expert assistance, its main object was kept steadily before the public. The need for a national recognition of the position of the deaf has long been urged by the supporters of the Bureau, and two years ago a movement for its reconstitution was started. This movement was publicly inaugurated at a conference in March, 1924, under the presidency of Lord Charnwood, when the outlines of the reconstituted body were considered and an executive committee was appointed to prepare draft articles of association. At this meeting Lord Charnwood was unanimously elected president of the reformed organisation; a representative group of vice-presidents accepted office, and an executive committee was selected to carry on industrial and social welfare work, to watch finance, to discharge generally the purposes of the Institute, and to coöperate with a strong medical committee. Mr. A. J. Story, headmaster of the North Staffordshire School for the Blind and Deaf, accepted the position of secretary, and those who know the work which he has done on behalf of the deaf will recognise the good fortune of the new organisation, now entitled the National Institute for the Deaf, in obtaining his services.

The report of the first year's working of the Institute has been circulated recently and shows that a great deal of preliminary spade-work has been accomplished, and in so short a space of time little more could be expected. The executive committee has been studying closely the industrial position of the deaf, the facilities—such as they are—that exist for their institutional treatment, the scope of any trusts or charities for their benefit, and any provision that exists for the instruction and supply of competent teachers. Apart from the record of performance the report makes interesting, if pathetic, reading because of the numerous and important places where the need for activity is demonstrated in order that the deaf subjects may have proper opportunity to prove their high measure of capacity to make good in life, given the necessary help at the start. The good objects of the Institute are clearly set out in the report and the promise at the beginning is fruitful, so that the necessary funds to carry on the work ought surely to be found. At present the Institute has an income of about £650 per annum, and one of at least £2000 is required to carry on the current work. If the facts set out in the report are realised by even a small section of the general public, annual subscriptions far in excess of this modest want would be forthcoming. And a much greater sum could be used immediately and with certain results.

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[1] THE LANCET, 1925, ii., 826.

## VITAL STATISTICS FOR ENGLAND AND WALES DURING 1925.

THE Registrar-General has issued a provisional statement of the figures for birth-rate, death-rate, and infantile mortality (per 1000) during the year 1925.

| — | Birth-rate. | Death-rate. | Infant mortality-rate. |
|---|---|---|---|
| England and Wales .. .. | 18·3 | 12·2 | 75 |
| 105 county boroughs and great towns, including London .. | 18·8 | 12·3 | 70 |
| 158 smaller towns .. .. | 18·3 | 11·2 | 74 |
| London .. .. .. .. | 18·0 | 11·7 | 67 |

The smaller towns are those with an estimated population in 1921 of 20,000–50,000. The (crude) death-rate for England and Wales relates to the whole population, but that for London and the groups of towns to the civilian population only. The Registrar-General remarks that the birth-rate of England and Wales, as a whole, is the lowest recorded, except during the war years 1917 to 1918. The death-rate and infantile mortality rate are equal to those recorded in the previous year. These provisional figures, which are not likely to require substantial modification, have been issued for the information of medical officers of health.

THE first number of the Registrar-General's Weekly Return of Births and Deaths for 1926 is unchanged inside, but has a cover whose phrasing gives a more accurate idea of its contents, which include a topographical list of infectious disease notified in England and Wales. The welcome reduction in the price of the Return from 1*s.* to 6*d.* weekly should ensure the wide circulation which this invaluable document deserves.

## INDEX TO "THE LANCET," VOL. II., 1925.

THE Index and Title-page to Vol. II., 1925, which was completed with the issue of Dec. 26th, will shortly be published. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLVII.—THE TREATMENT OF SALPINGITIS.

### I.—ACUTE SALPINGITIS.[1]

ACUTE salpingitis for all practical purposes is either gonococcal or streptococcal, and the latter nearly always follows labour or abortion. Further, whilst in gonococcal infections the inflamed tube is the one important feature, in the streptococcal cases the tubal lesion is only an incident in a widespread pelvic inflammation. Acute gonococcal tubes always arise as a spread of infection along the mucous membrane from the uterus to the tubes, whilst in streptococcal cases the tubal infection is secondary to a pelvic peritonitis, the organisms gaining access to the tubes either by the lymphatics or via the abdominal ostium. Thus it happens in practice that treatment is directed towards the tubes primarily in gonorrhœa, but towards a widespread but local peritonitis in streptococcal puerperal infections, the tubes being only of secondary importance.

### *Diagnosis.*

In gonococcal cases much depends upon diagnosis. The diagnosis is often of great difficulty, the differentiation from acute appendicitis raising a problem very baffling to the surgeon. The localisation of pain to the right iliac region is not always so marked a feature of appendicitis as might be expected, nor is the pain of acute salpingitis always bilateral at first. In both diseases there may be involvement of large areas of peritoneum producing more or less generalised pain in the lower abdomen. The temperature, pulse-rate, and the occurrence of vomiting present nothing characteristic of either lesion. At the commencement of an attack, when time is so important in appendix cases, there may be nothing definite to be felt on abdominal or pelvic examination. On the whole, there is more to be discovered by a pelvic examination in acute salpingitis than there is in appendicitis. One particular sign is of great importance, and that is the acute pain which is evoked by attempts to move the uterus in tubal inflammations. Although not fixed at first, any movement of the uterus always produces great pain and is much resented by the patient. This is not so in most appendix cases, as long as the appendix and surrounding inflammatory focus are situated above the pelvic brim. In doubtful cases an examination under an anæsthetic should never be omitted, since it will often decide the diagnosis, bilateral thickening of the tubes and of the structures around them, definitely excluding appendicitis.

Another condition sometimes mistaken for salpingitis is a ruptured ectopic gestation, or tubal abortion. The history of the latter often decides the diagnosis, especially if a period has been missed, which is not always. The very rapid onset, the sudden pain and faintness, followed by a rapidly rising pulse-rate from internal hæmorrhage, and later the onset of vaginal bleeding (very important) make a clinical picture sufficiently pathognomonic of ectopic gestation and its acute results.

### *Operative versus Conservative Measures.*

Once the diagnosis of acute gonococcal salpingitis is made, the question has to be decided whether an operation is to be performed or not. Seeing that the peritoneal inflammation which determines the acute attack is always localised, and that the risk of general peritonitis is practically nil, there is never the same necessity for immediate operation as there is in appendicitis. Moreover, the natural tendency first attack of gonococcal salpingitis is towards spontaneous cessation of symptoms and resolution of inflammatory peritoneal exudates in about a fortnight.

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[1] An article by Mr. Stevens on the Treatment of Salpingitis will appear in the next issue of THE LANC

The condition of the tubes, ovaries, and peritoneum after the attack has subsided varies enormously; in the majority of cases both tubes are enclosed in adhesions, with their abdominal ostia permanently closed. In a small proportion of the cases one or both tubes may remain patent and perform their normal functions, as shown by the occasional occurrence of pregnancy later. In another small percentage of cases the symptoms only ameliorate, the pulse and temperature never become normal, and on examination the tubes are found obviously enlarged, meaning that they contain pus These are the only cases in which operative measures are imperative, and in them only when it is obvious that complete resolution has not taken place.

Certain authorities recommend immediate operation in all cases, the chief argument in its favour being that a large proportion of gonococcal cases suffer from recurrent attacks of pelvic peritonitis, that adhesions become more dense and widespread with each attack, that operations have to be done in the end, and that these late operations are more difficult and dangerous. These arguments are only partly true, for some cases never have recurrent attacks at all, others do not get very dense adhesions, and, on the whole, however difficult the late operation may be, the results are very good and the mortality is low. If an operation is done in the acute stage of a first attack the temptation to remove both tubes is very great, especially as they are usually enlarged and dripping pus from the abdominal ostium. It has been shown, however, that it is not necessary to remove these pus-dripping tubes. If they are freely slit up and the pelvis drained, preferably by a large tube through a small stab wound outside the rectus muscle, the results are very good. This is the treatment recommended if the abdomen is opened in a case in which it is doubtful whether the appendix or tubes are at fault, as will certainly happen on occasion to every surgeon The histories of cases treated in this way will decide in the future whether tubes slit open will ever function normally, or whether there will be such widespread adhesions that conception is impossible. Further, also, it is not yet certain whether cases thus treated can be regarded as cured, or whether they may later have recurrent attacks of peritonitis. From these considerations it is advised that a first attack of acute gonococcal salpingitis and peritonitis should be treated on expectant lines, and operations only performed if complete resolution does not occur, and actual pyosalpinges remain. In the latter event an abdominal section must be done, taking care to pack off the intestines with a large swab or gauze roll to prevent any possible infection of the upper abdomen. Usually, both tubes will have to be removed, which can only be regarded as a calamity, especially as these conditions usually occur in young women. If it can be shown that these recent pyosalpinx cases can be treated safely by slitting up the tubes and drainage, true conservatism will be reached, and some of these tubes may recover sufficiently well to perform their functions. In all operations of this kind, where there is infection and where drainage is necessary, only absorbable catgut should be used as a ligature or suture material, so that there may be no sinus formation from infected ligatures.

### *Expectant Treatment.*

The expectant treatment to be adopted is chiefly concerned with the relief of pain and the promotion of absorption of inflammatory exudates. Pain is best relieved by hot applications to the abdomen and hot vaginal douches of normal saline solution. Later, when pain is subsiding, counter-irritation may be employed in the form of ichthyol tampons or vaginal suppositories, also combined with hot douches, 10 per cent. ichthyol in glycerine for the former or 10 per cent. ichthyol in cacao butter for the latter being the usual method of prescription. Every other night is sufficient for the ichthyol, as it is easy to create a sore vagina by too frequent applications. At the commencement drugs are required to relieve pain, and heroin in small doses (gr. 1/12) answers very well; later, aspirin gr. x. and potassium bromide gr. xxx. by the mouth will suffice. The bowels must be kept open by enemata, and if necessary saline purgatives may be given. Absorption is promoted by hot-air baths, easily contrived in a private house by making a rough cradle to go over the abdomen and hanging in it two carbon filament electric lamps.

### *Acute Salpingitis of Streptococcal Puerperal Origin.*

This is a minor consideration in itself, being quite overshadowed by the degree of local peritonitis present, and the almost constant lesion, ovarian abscess, accompanying it. Puerperal peritonitis is frequently generalised, and as such is practically always a fatal condition, it will not be considered in this article. If, however, the disease is localised, it may subside and resolve like the gonococcal variety. Frequently, however, this desirable result does not occur and suppuration results. In this event three conditions may have to be dealt with: free pus in Douglas's pouch, pyosalpinx which may be unilateral, and ovarian abscess. These lesions often cannot be differentiated before operation and often coexist. Sometimes free pus alone is found, in which case the posterior vaginal fornix will be found bulging downwards, the uterus being pushed upwards and forwards. In such a case the pus is best evacuated per vaginam. An incision is made transversely across the posterior fornix for one and a half inches, the finger is pushed up behind the uterus and the abscess cavity is entered. Blunt-pointed curved scissors may be used instead of the finger. A careful bimanual examination of the pelvis with the finger in the abscess cavity will decide whether there is an ovarian abscess in addition. If present, it is to be opened into the abscess cavity. Drainage is best accomplished by two tubes, side by side, sutured in place by fine catgut. Through them the abscess can be irrigated daily if they are left long and reach the vaginal entrance. In other cases where the temperature and pulse, wasting, and leucocytosis indicate pus formation, but no definite pelvic abscess can be felt, an abdominal operation must be done. Great care should be exercised to prevent general peritoneal infection, adhesions should be separated by cutting as much as possible. If the ovary is represented by a sac of pus it should be removed whole if possible, a pyosalpinx removed and drainage always employed whether any free pus is found in the peritoneum or not. As these cases are always the result of lymphatic infection from the placental site they are quite often unilateral, the appendages on the other side being unaffected. In a case of mine a normal pregnancy occurred three years after the removal of a large ovarian abscess, a pyosalpinx, and drainage of the resulting cavity. One trying complication of these cases is suppuration and breaking down of the abdominal incision This can sometimes be prevented by protection of the wound surfaces during the operation by rubber sheeting, and by swabbing the wound with a non-irritant antiseptic such as Milton before suturing. Drainage should always be carried out through a stab incision lateral to the mid line so as to allow of complete closure of the central incision.

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A GLASGOW NURSING HOME.—Dr James Macfarlane, chairman of the Board of Glasgow Royal Infirmary, and his brother, Mr George W Macfarlane (both of Messrs. Macfarlane, Lang and Co., biscuit manufacturers of Glasgow), have presented that institution with 22 acres of land at Canniesburn, on the north western outskirts of the city, as the site for a nursing home for those requiring treatment outside their own homes whose means do not allow of their paying the ordinary charges.

# Special Articles.

## THE PRESENCE OF LEAD AND ARSENIC IN TARTAR EMETIC.

BY E. GRIFFITHS-JONES, M.SC. MANCH., A.I.C.,
CHIEF CHEMIST, PUBLIC HEALTH LABORATORIES, DEPARTMENT OF PUBLIC HEALTH, CAIRO.

THE extensive use of potassium antimony tartrate, injected intravenously, in the treatment of bilharzia lends fresh importance to the question how far the elements lead and arsenic should be allowed in the drug. Some idea of the importance to which tartar emetic has attained may be gathered from the number of patients to whom it was given last year in Egypt. In all 54,316 patients were treated and the total number of intravenous injections was 311,656. The amount injected each time is 2 c.cm. of a 6 per cent. solution, and each patient receives in the whole treatment approximately 1·5 g. of tartar emetic.

Early in its use it was found that occasionally very severe symptoms arose as the result of the treatment, and it became incumbent on those concerned, before holding the tartar emetic responsible, to make certain that the unpleasant after-effects might not be due to some impurity in the drug used. In accordance with routine practice samples of tartar emetic were examined in these laboratories before being issued for use to the hospitals. The department is accustomed to insist that pharmaceutical preparations should conform to the requirements of the British or other recognised pharmacopœia.

It was very early established that several specimens of tartar emetic submitted for analysis contained either lead or arsenic or both. For many drugs the B.P. lays down a definite limit for lead and arsenic, and gives details of the examination for these impurities. There is accordingly no difficulty in accepting or rejecting such drugs, but tartar emetic is not included amongst those for which a lead and arsenic limit is given. The wording of the British Pharmacopœia (1914, p. 48) is as follows: "Yields no characteristic reactions for lead, copper, arsenic, iron, sodium, ammonium, chlorides, or sulphates."

Two leading firms of manufacturing chemists, one in England and one in Germany, have written to the department of Public Health, Cairo, on this question, and both adopt the same attitude in quoting the above paragraph from the B.P. in their favour. The British firm admit the presence of lead, but argue that all samples of tartar emetic, of different makes, which they have examined, contain 0·09 to 0·12 per cent. of lead; the German firm of manufacturing chemists say that their tartar emetic is lead-free and that, if it is not, there is no method of estimating lead in tartar emetic. The German firm argue in effect that if 1 g. of tartar emetic be employed and this quantity examined for lead by the tests given in the B.P., p. 492, no reaction will be obtained which will settle the presence or absence of lead. The contention of both these firms that tartar emetic should be examined for lead by the tests given on p. 492 of the B.P. is extraordinary in view of the obvious fact that the antimony would interfere with their application.

We have employed two methods for the estimation of lead, one colorimetric and one gravimetric. The colorimetric test is given in Squire's Companion to the British Pharmacopœia, p. 213. Twenty parts per million of lead will give an appreciable colour.

In order to make certain that the colour was due to lead and not to any other metallic impurity we have in certain cases estimated the lead gravimetrically, and for this I have worked out the following gravimetric process, which I believe to be accurate though somewhat tedious:—

20 g. of the sample were dissolved in a minimum quantity of water and then decomposed with a strong solution of caustic soda, the latter being added until the white precipitate formed had redissolved, after which a further excess of soda solution was added. $H_2S$ gas was passed into this solution during several hours and the beaker then allowed to stand overnight. The black precipitate which had settled was filtered through a Gooch crucible, washed with ammonium sulphide, and finally with water. The precipitate was dissolved in dilute boiling nitric acid. Sulphuric acid was then added and the solution boiled until it commenced to fume, after which it was cooled, diluted, and allowed to settle.

The white precipitate which settled was filtered through a Gooch crucible and washed with 10 per cent. sulphuric acid and finally with water.

In some experiments this precipitate was assumed to be lead sulphate and weighed as such after drying. In others the precipitate of lead sulphate without drying was dissolved in a hot concentrated solution of ammonium acetate and the lead in the filtrate was precipitated with potassium bichromate solution as lead chromate. This solution and precipitate were boiled, cooled, and allowed to settle, and the precipitate was filtered on to a Gooch crucible, washed with water, dried at 110° C. and weighed as lead chromate.

In one case a sample was reported to me as containing 200 parts per million of lead when examined on 1 g. colorimetrically. By the gravimetric process I obtained the figure 198·7. In another case the report was "about 1200 parts per million." Determined gravimetrically the figure was 1206.

For detecting arsenic the U.S.P. and the P.G. employ Bettendorf's test, a colour reaction with stannous chloride, which depends upon a darkening of the reagent within a specified time if arsenic be present. The test is not very satisfactory, especially in view of the fact that the U.S.P. employ 0·1 g. of the tartar emetic and the P.G. 1 g.

The following method is used in these laboratories and appears to be reliable:—

0·5 g. tartar emetic is dissolved in 5 c.cm of water; 17 c.cm. strong HCl are added and the solution is transferred to a small distilling flask, when one or two drops of strong solution of stannous chloride are added.

The solution is distilled until only a few c.cm. remain. An adapter from the condenser dips into a very small quantity of cold water to absorb the HCl gas which first passes over. The distillate is redistilled, the last few cubic centimetres being rejected, and the second distillate is transferred to a suitable vessel; the arsenic, if any, is estimated by the Gutzeit process against a standard stain.

The limit which we have adopted for arsenic is 10 parts per million as estimated by the above process. The quantity of the limit of lead has aroused much controversy, but we maintain that lead-free tartar emetic can be obtained, that is to say, a salt which shows no colouration on 1 g. with NaOH and $H_2S$ as described above. It is surely possible that even small amounts of lead—say, 50 parts per million—might produce toxic symptoms when injected intravenously in conjunction with antimony.

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FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Jan. 28th Dr. H. C. Cameron will lecture on Catarrhs and the Catarrhal Child at 5 P.M. in the lecture hall of the Medical Society, 11, Chandos-street, London, W. The London Lock Hospital will hold a comprehensive course in Venereal Diseases from Feb. 1st to 27th, including clinical instruction and lectures. A two weeks' afternoon course beginning on Feb. 1st will be given at the Blackfriars Hospital for Diseases of the Skin. A combined course in Diseases of Children, in which the Paddington Green Hospital, Victoria Hospital, and the Children's Clinic will be participating, will be given from Feb. 8th to 27th. There will be morning and afternoon sessions in all the different departments of the hospitals. A late afternoon course (4.30 to 6) has been arranged at the London Temperance Hospital from Feb. 8th to 19th for the convenience of the general practitioner. A general intensive course in medicine, surgery, and the special departments will be held at the Queen Mary's Hospital, Stratford, from Feb. 15th to 27th. Daily sessions will be given at 10.30 A.M. to 5 P.M., including demonstrations of clinical methods and groups of illustrative cases. The syllabus of each of these courses, and the programme of the general course, may be had on application to the secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

### REPORT OF THE
# MEDICAL RESEARCH COUNCIL,
### 1924–25.

THE eleventh annual report of the Medical Research Council[1] follows its immediate predecessors in general pattern. After an introductory comment on special aspects of the work under review, an account is given of the present constitution and activities of the National Institute for Medical Research at Hampstead. The next section is devoted to problems concerned with the determination of biological standards and the methods of biological survey and measurement, this year in relation to the provision of machinery for the operation of the Therapeutic Substances Act, 1925. Experimental medicine, notably the work carried out in the clinical units of various medical schools, is described in Section IV. Research schemes in special subjects form the substance of the longest section of the report. Though this grouping has only a temporary and provisional value, and must not be regarded as a permanent or rigid division, it serves as a convenient index to all sections of the report, since work already described on another page in connexion with various institutions is mentioned again in its appropriate paragraph. The system of cross references is well devised and is used with discretion. Notes on industrial medicine and industrial fatigue, on travelling Fellowships, and on changes of personnel in the Council conclude the report, while an appendix gives lists of standing committees, personal names, institutions, and subjects dealt with.

### *Constitution and Finance.*

The constitution of the Medical Research Council is at present as follows. The Earl of Balfour, F.R.S. (chairman), Lord Mildmay of Flete (treasurer), Mr. William Graham, Sir Frederick Andrewes, F.R.S., Prof. E. P. Cathcart, F.R.S., Prof. Georges Dreyer, F.R.S., Prof. T. R. Elliott, F.R.S., Sir Archibald Garrod, F.R.S., Sir Charles Sherrington, F.R.S., Sir Cuthbert Wallace, and Sir Walter Fletcher, F.R.S. (secretary).

A grant-in-aid of £135,000 was provided by Parliament for the expenditure of the Medical Research Council during the present financial year. This sum will be allocated as follows: For administration, including expenses of the Council, of the administrative offices and staff, and of travelling, £8,500. For the expenses of the National Institute for Medical Research at Hampstead and of the farm laboratories at Mill Hill in association with it, for the salaries of the scientific staff and the expenses of research work done by them or by other workers temporarily attached, £12,000. For research grants to scientific workers and for the expenses of their researches at the universities and at other centres in the United Kingdom, for research work in clinical medicine, for various statistical inquiries, and for the investigations of the Industrial Fatigue Research Board, £81,500.

The Council acknowledge with gratitude that in the past resources additional to their Parliamentary grant-in-aid have been available for their use, either by the coöperation of other bodies or by the generosity of individuals.

Last year an introductory chapter was devoted to a survey of progress in physiology, pathology, and bacteriology in the years 1920–24. This year a critical discussion of the advances made in the year under review in the study of immunity and infectivity in general, in the investigation of the filter-passing viruses and of cancer, and in the determination of biological standards is supplied. The chapter gives a well reasoned statement of the present position and outlook, which we print substantially in full.

### *Immunity and Infectivity.*

No phenomena are more obvious and striking than those of the immunity won by the body after a first successful defence against a given infective organism, and no triumphs of medical science are greater in terms of humanitarian utility than those successful empirical imitations of this natural process which have given us the means of a broadcast anticipatory defence against small-pox, cholera, typhoid fever, and the like. This study of immunology has naturally attracted the eager efforts of workers in all countries, and immense accumulations of data have been collected. The scientific analysis of immunity reactions, however, offers extraordinary difficulties. Some of these reactions belong to the leucocytes, the wandering defensive cells of the body. The study of these, even in normal life, has been much neglected by physiologists, and this defect has been only partly remedied by the acute observations of pathologists who have studied them in disease. The experimental investigation of them, however, is a matter of extreme difficulty. It must still be uncertain how far, for instance, in the ingenious studies recently made in the service of the Council by Sir Almroth Wright, the behaviour of leucocytes under artificially controlled conditions outside the body is truly representative of their behaviour within the body. Not less difficult is the study of the immunity responses of the body shown in changes of the chemical and physical states of the complex fluids of the body. In this field has been studied the precise adaptation, the "specificity," of the chemical responses made to the attack of particular organisms of given type, or even of sub type. Elaborate studies have brought into use names descriptive of particular parts of these phenomena, the so-called "aggressins," "agglutinins," "precipitins," and the like, into which these defensive chemical mechanisms can be sorted. That so much has been accomplished in the present imperfect state of biochemistry and colloidal physics is high testimony to the experimental skill of the pathologist. It seems clear, however, that for further clarity in these matters, for the explanation of disturbing contradictions, and for the issue in practical use of methods of precision, we must look to the better development and application of chemical and physical knowledge. This indeed is already in sight. An instance of it, among others that might be quoted, is ready to hand in the piece of work by Dr. H. W. Dudley and Dr. P. P. Laidlaw in the National Institute for Medical Research. Here it has been shown that part of the specific reaction of the body fluids to the tubercle bacillus and its products can be elicited by a relatively simple chemical substance of recognisable molecular structure. Advances of this kind, small as they may seem at present, are greatly needed for clearing away the ambiguities and disappointments that have attended all the efforts from those of Koch to those of the present day to secure at will an effective, regular, and measurable artificial immunity, whether in active or passive form, against tuberculosis.

Meanwhile, it has been interesting in recent years to notice an increasing study of the "infectivity" of the organism as contrasted with the immunity responses of the host. Intensive study is being made of the exact chemical conditions which either advance or retard the growth of the infective bacteria and the development in them of higher offensive powers or "virulence," and of the products of bacterial growth. Instances may be found of studies in this field by several workers with Sir Frederick Hopkins in biochemistry and by Dr. E. G. D. Murray in pathology, all at Cambridge, and by Prof. J. W. McLeod at Leeds.

On another side some striking recent studies have been made in this country which show the dependence of the infectivity of bacteria upon what at first sight seem to be almost irrelevant factors acting in necessary alliance with them. For a quarter of a century it has been known that some, perhaps many, of the microbes which are undeniably responsible in a causal sense for definite and grave diseases in man animals are in themselves completely

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[1] H.M. Stationery Office. 1925. Pp. 184. 3s. 6d.

Introduced to the body in the absence of other agents they are quite harmless. Thus the bacilli of tetanus or their spores, if washed and implanted alone in the body, cause no ill-effects. Mr. C. Dobell showed that the amœba which causes amœbic dysentery is a common inhabitant of the human intestine in those who have never been outside this country; yet amœbic dysentery very rarely occurs in Great Britain. In disease due to organisms of several, perhaps of very many, kinds, the disease begins only if special circumstances are present, in which some change in the body, due to some other factor than the infecting parasite itself, has been brought about.

During the war Dr. W. E. Gye and Dr. W. Cramer studied this problem with immediate reference to wound-gangrene and tetanus. They discovered that a minute quantity of calcium salt, a common constituent of soil, acts on the body tissues in such a way that the otherwise harmless bacillus is able, with the accompaniment of this adjuvant chemical influence, to act with full virulence. Dr. Gye later showed, with Dr. E. H. Kettle, a parallel or analogous relationship between the infectivity of the tubercle bacillus and the effects of silica. The infective power of the bacilli, as shown by their unrestrained growth and its consequences to the host, was immensely increased if silica was associated with it in action upon the body tissues. This pursuit of a line of theoretic thought has immediate practical significance for the study and control of miners' phthisis, in which the most direct danger to life due to silicosis is that of the tuberculosis so constantly associated with it. Work of this kind must hold great possibilities in the future, and it will be seen that it has already assisted inspiration or at least provided suggestive analogies in the studies of cancer by Dr. Gye which have attracted so much attention in the past year.

### *Studies of Filter-passing Viruses and of Cancer.*

It has been shown by Dr. Peyton Rous, of the Rockefeller Institute, New York, in 1911, that a rapidly fatal malignant tumour in a certain breed of fowls can be caused by an agent so small as to be able to pass through very fine filters that would hold back ordinary bacteria. The agent was believed to be a filter-passing virus. Dr. Gye has now provided experimental proof that this opinion is true. In the first place, he has shown that the agent in question can be shifted in fluids containing it by very rapid rotary movement—and is therefore corpuscular; in the second place, he devised means for the first time to cultivate the organism artificially, and so to use it in isolation for experimental work. He found evidence that the cultivated and isolated germ could not alone produce a new tumour, but only in the presence of an equally essential second factor, a non-corpuscular and therefore a non-living and soluble chemical substance which could be obtained from the substance of the previous tumour. The ultra-microbe together with the chemical factor ("specific factor") regularly gave a new malignant tumour. The microbe itself is quite invisible by ordinary microscopic methods. Mr. J. E. Barnard, however, devised special means for demonstrating its presence and for gaining some first approximations to its description by using ultra-violet light. The success of this work and of other developments of optical technique allowed the presence or absence in given preparations of the virus, as demonstrated experimentally by Dr. Gye, to be detected independently, and thus each part of the work could provide a check upon the results of the other. The possibility of this cross-checking of the results gained on either side and its uniform success greatly increased confidence in the results obtained. The preliminary results were published in THE LANCET[2] by Dr. Gye and Mr. Barnard in companion papers last July upon the Ætiology of Malignant New Growths.

This new work transforms our outlook upon the general problem of the causation of cancer. Observation, gross and microscopic, has shown beyond dispute that malignant disease occurs in almost all animals. Through all the range of the animal kingdom it begins in the same way in the form of a local swelling, almost always single; it spreads in the same way by permeation locally and by carriage in the streams of the flowing body-fluids to set up more remote secondary tumours elsewhere; it ends in the same way, in the death of the host. Microscopically a given variety of cancer in man, say of the skin, is the same as a cancer of the same tissue in a mouse, or a dog, or any other animal. The disease presents in that respect a uniformity which is almost without parallel in pathology. Clinically and biologically it is an individual disease, maintaining its own characters whatever the scene of its being. The experimental study of cancer, however, has hitherto not revealed any *nexus* between the tumours of different species of animals. It has been found impossible, for instance, to transfer the tumour of one animal—e.g., of a mouse—to another mouse by any means except by transferring some of the living tumour cells; if the cells are killed by any means they can no longer reproduce the tumour. Moreover, the tumours of mice can even so be propagated only in other mice and in no other kind of animal. All attempts to show the existence of an agent separable from the living cells and able to reproduce the tumour have hitherto failed.

Experimental study had therefore indicated a particularity or specificity of malignant tumours, while clinical and general observation had seemed to establish a uniformity and generality. This has been the great paradox of medicine. Those who reflected exclusively from the clinical point of view were inclined, in general, to believe that some common causative factor must exist to link up the tumours of man and of the other animals; those who rested on the experimental findings tended, again in general, to reject such a belief. The evidence now brought forward by Dr. Gye resolves the paradox. In essence it suggests that the common factor for all malignant tumours is a filter-passing virus or ultra-microbe, or a family of viruses. It shows that this microbe alone is harmless, as the bacillus of tetanus is harmless in the absence of some other adjuvant factor. Only in special conditions, determined by another factor, can the microbe infect the body cells and institute a new growth, a tumour. Heretofore, it has been almost inconceivable that a separate form of cancer germ could exist to correspond with every race of animal and every different variety of tumour formation. If, however, the specificity resides in an adjuvant chemical factor derived from the tissue-cells of a given species of animal, specificity need not be postulated for the other essential agent—namely, the infective ultra-microbe or virus. It may be noted that among the conspicuous general circumstances which are well known to favour cancer production are those of long-continued irritation by tar and certain oils, chemicals like arsenic and aniline dyes, clay pipes, and so on. It may be found later that these apparently diverse contributors have a common mode of action and a common effective resultant factor.

The fowl sarcoma described by Rous is conspicuous among all transplantable animal tumours as being able to yield not only the virus or ultra-microbe but also a substance which determines "infection." The microbe can be replaced by microbes obtained from other tumours and from other animals. The demonstration of the truth of this is the essential feature of Dr. Gye's work, at this stage at least, and so far as the general cancer problem is concerned. It is a demonstration which the Council hope—and have reason to expect—will be repeated very soon in many laboratories in other countries.

It need hardly be pointed out that the establishment of a definitely parasitic causation of malignant disease brings new hope to the prospect of gaining further knowledge. Since an avenue is plainly open to the experimental confirmation and extension of these results, it is unnecessary, and indeed unadvisable, to speculate here upon the practical possibilities to which they may lead.

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[2] THE LANCET, 1925, ii., 109 et seq.

The Council acknowledge indebtedness for material supplied to Dr Gye, to Dr. Peyton Rous, and to Dr J. A. Murray, F R.S., Director of the Laboratories of the Imperial Cancer Research Fund. The experimental work of Dr. Gye and the optical work of Mr. Barnard have been actively taken up by the staff of this Fund with a view to their extension in the many directions now open The proximity of the Stroud Laboratory of the Imperial Fund to the Council's Farm Laboratories at Mill Hill has greatly facilitated this coöperation. The Council are constructing additional laboratory accommodation at Mill Hill, to which, for the present at least, Mr. Barnard's department of Applied Optics, including the work upon ultra-filtration, will be moved from the National Institute at Hampstead The trustees of the late Sir William Dunn have generously given to the Council, for the promotion of medical science, £2000 a year for five years, and this will be used in chief part for the advancement of these studies.

### *Biological Standards.*

The enactment in August, 1925, of the Therapeutic Substances Bill is an event of much importance to the progress of medical science, to the daily practice of the medical profession, and to the safety of the public. The primary aim of the Act is to protect the public, both patients and doctors alike, by fixing standards for the strength and purity of complex substances like diphtheria antitoxin or like insulin, and, again, complex chemical compounds like salvarsan. These can only be assayed, or measured for their potency and purity, by indirect methods. Hitherto the doctor, betrayed by the absence of potency tests, has been in danger of quite inadvertently giving an overdose or underdose which may have serious or fatal results, or again, betrayed by lack of purity tests, he may often have exposed his patients to other dangers.

The arrangements proposed in the Act closely follow the present working arrangements for salvarsan and for insulin. These arrangements have only been made possible by the accident in each case that patent rights have been vested in a public department under which the enforcement of standards of strength and quality has been made possible. Salvarsan compounds have been manufactured and imported under licence from the Board of Trade owing to the outbreak of war in 1914, while insulin has been manufactured under licence from the Medical Research Council. All the salvarsan compounds since 1914, and all the insulin since its discovery in 1923, which have been used in this country have been tested for potency and purity by the Medical Research Council. By a fortunate coincidence in time, the work of preparing certain therapeutic standards, now required under the Act, has been facilitated by international agreements which have recently been reached under the auspices of the Health Section of the League of Nations. The second of two International Conferences upon the standardisation of biological products was held in Geneva early in September, 1925, when Great Britain, France, Germany, the United States, and five other nations were represented by distinguished pharmacologists. Unanimous international agreement was reached with regard to the standards to be adopted for such widely used and important substances as pituitary extract, insulin, thyroid gland, salvarsan, digitalis, and some remedies against parasitic worms. Valuable discussions took place and resultant arrangements for new work were made with respect to other substances in common use, but not yet susceptible of an agreed standardisation. The Council add that few international conferences in a field of such technical complexity and involving so many hitherto divergent national interests have reached within three days such felicitous agreement over a wide range of subjects, and attribute this happy result largely to the intellectual and personal qualities of Dr H. H. Dale, who acted as president of the conference.

(*To be continued.*)

## PARIS.

(From our own Correspondent.)

### *Tetanus Anatoxin.*

Ramon and Zoeller have just reported upon the effectiveness of tetanus anatoxin, which stimulates the formation of antibodies without being toxic. A series of some 170 injections showed that this method of vaccination is perfectly harmless, produces no local or general reactions, and effectually stimulates the formation of antibodies by the tissues Two injections may be given, at an interval of 25 days Ramon and Zoeller are continuing their studies on antitetanic vaccination

### *Proposed Insurance Legislation.*

A Bill has just been presented to the Senate for the compulsory insurance of wage-earners whose income does not exceed 12,000 francs annually, plus 2000 francs for every child Persons insured will pay 5 per cent. of their wages, and employers will contribute an equal amount The insurance is to provide against sickness, premature disability, unavoidable unemployment, medical and hospital care, old age, and the like For pregnancy and childbirth it will cover the period of gestation and six months following accouchement, and will provide a daily indemnity extending for six weeks before and six weeks after childbirth. Insurance will cease to be obligatory at the age of 60 years, with possible prolongation to the age of 65. The worker will be assured of an old age pension after continuing his 5 per cent payments for 30 years, and this pension will supply a sum equal to at least 40 per cent of the average income earned during the ten years preceding the age of 60. Proportional pensions will be awarded after an employment period of 25 years, and during forced unemployment the daily allowance will equal at least 40 per cent. of the usual wages.

This Bill considers medical relations more fairly than did an earlier draft, but it does not clarify the position of doctors as regards professional secrecy, and it is criticised on the ground that it does not provide for certain classes of workers It is unlikely to pass without further amendment.

### *An Antitoxin against Cancer.*

Maurice Bloch has presented 12 cases of cancer, including sarcomatous tumours, which have been cured or satisfactorily arrested by inoculating the patients with an antitoxin obtained from tumour cells in a state of fatty degeneration. The fatty tissue, which cannot be reproduced or act metastatically, is supposedly able to combat the toxins elaborated by cancers The treatment was suggested by cases in which lipoblasts were seemingly responsible for the spontaneous arrest and cure of sarcoma and carcinoma.

### *Prognosis of Cancer of the Stomach.*

From the results of 100 gastrectomies done by him during the last four years, Dr. Victor Pauchet, of Paris, has come to the conclusion that the presence of free hydrochloric acid in the gastric juice is a prognostic sign of great importance. Of 21 cases in which the acid was still present all but two recovered from the operation. Twelve of these have been since under observation and only two of them have relapsed rapidly in the first two years. In those with achlorhydria, on the other hand, the operative mortality was 22 out of 50. Thirteen are still under observation and six of these have relapsed rapidly. He sums up the situation by saying that in cases in which acid is present the mortality of operation is moderate, relapses are late, and the ultimate results are favourable In this connexion it is interesting to note the recent death, from pulmonary congestion, of a man of about 70 who was operated upon for cancer of the stomach by Tuffier in 1808. The growth was then found on examination to be an epithelioma of the tubulo-racemiform variety. Prof Hartmann has quoted similar cases and estimates that 30 per cent of patients in whom gastrectomy is done remain quite free from recurrence.

### *Recrudescence of Alcoholism.*

Several recent communications have called the attention of the Académie de Médecine to an increase in the number of cases of alcoholism. Prof. Jean Lépine, of Lyons, draws particular attention to the evil results of wine drinking, whilst Dr. Cazeneuve (of the same city) insists on the bad effects of alcohol in all its forms. Especially he condemns the aniseed-flavoured apéritif and, above all, the substitutes for absinthe, which are becoming more and more popular. These beverages are forbidden by law, but actually they are advertised in the most flagrant way. They seem entirely to escape the control of the authorities, whose powers to suppress fraud are quite inadequate. An increase in the number of alcoholic patients in the lunatic asylums of the Rhône coincides with the increase in the consumption of liquor.

### *Free Hospitals and Foreigners.*

An energetic campaign against the abuse of free hospital service in Paris is being waged by the French press, especially by the *Matin*. Gratuitous treatment and maintenance of undesirable foreigners throws a heavy strain on French finances, and the annual cost of free care of foreigners is estimated at 8 million to 10 million francs. At Paris 10 per cent. and at Lyons 13 per cent. of the children admitted to hospital are foreign, whilst at the Tenon Hospital 65 of 100 helpless tuberculous patients are foreign. During last year 275,000 foreigners were registered as arriving in France and probably 30,000 more entered the country without passports. This influx of undesirables not only burdens France and her taxpayers financially, but brings in trachoma, leprosy, and other epidemic diseases, and it seems likely that the campaign now on foot will result in legislation.

### *Lesions Produced Electrically.*

At the meeting of the Académie des Sciences on Dec. 7th last Dr. Jellinek discussed the great differences between cutaneous and organic lesions due to electricity and those which are the result of simple burns. Severe lesions caused by electric current heal by aseptic necrosis; fever and alterations in the general condition occur but rarely. Amputations, he considers, are often done unnecessarily; conservative treatment is generally successful, even in the gravest cases. The prognosis in electrical lesions is usually favourable; not only do the skin lesions heal, but recovery tends to occur in the nerves and spinal cord when changes have been produced in them.

Prof. Achard, secretary-general to the Académie de Médecine, is leaving France for several months on a mission to Japan, which he is undertaking at the request of the Ministry for Foreign Affairs. He will carry to the Japanese medical profession the cordial greetings of their French colleagues and will consider how the two countries may be brought into more intimate intellectual relations. The French Government, desirous as it was that a doctor should visit the Japanese so as to encourage the spread of French science, could not have made a better choice.

Prof. Gosset, known internationally as a brilliant surgeon, has been named Grand Officer of the Legion of Honour.

Owing to the noticeable incidence of small-pox among civilians in various parts of France, the Minister of War has circularised the generals of the French army, insisting on special strictness in the vaccination and revaccination of recruits.

In Paris the new regulation closing pharmacies on Sundays and holidays is being strictly enforced; one pharmacy is maintained open for each arrondissement. A number of pharmacists who have kept their shops open in spite of the prefect's decree have recently been fined by the decision of the Cour de Cassation (supreme court), which reversed a previous acquittal.

## BERLIN.

(FROM OUR OWN CORRESPONDENT.)

### *Professional Secrecy.*

THE German Criminal Code provides that medical men, as well as midwives, lawyers, and members of similar professions, are liable to punishment if, without being authorised to do so, they divulge facts with which they have become acquainted in the exercise of their profession. The maximum penalty is three months' imprisonment and a fine not exceeding M.1500 (£75). The term unauthorised—unbefugt—is essential. Even as a witness, according to the existing law, a medical man must decline to give evidence without the express authorisation of his patient, and when he is asked by an insurance company to give a certificate he is obliged to get the consent of the patient before complying with the request. In certain instances, however, a medical man may be obliged to act apparently against the principle of professional secrecy. It is quite evident that in notifiable diseases he must make the necessary declaration to the sanitary authority even in the face of the patient's objections, and this is not, of course, regarded as an unauthorised action but as one expressly authorised by the laws relating to infectious diseases. A medical officer to a school must also, as part of his duty, notify the school authority of the fact that a child is suffering from tuberculosis. But some situations are more doubtful. In a case in which a medical man informed the Government that one of his patients, who was in Government employ, showed signs of insanity, the Supreme Court decided that he was authorised to do so in the public interest, which must always have priority over the interest of the individual. It has also been decided that a doctor may, if necessary, disclose to the prospective father-in-law of one of his patients the fact that his patient is suffering from venereal disease. The Criminal Reform Bill, however, regulates the matter on a different basis. Hitherto a professional secret has been imposed only upon medical men, but the new Bill provides that everybody attending patients for money, even if not qualified, must observe the rules of professional secrecy. The medical attendant has to consider whether it may be in the public or private interest to divulge a fact of which he has become aware in his professional capacity, and in consequence the responsibility lies with the individual medical man. But even if a court concludes that he was wrong in divulging professional secrets he is not liable to be punished so long as he has done it after conscientious consideration of the pros and cons.

### *Frambœsia in the Dutch Indies.*

In a recent lecture Dr. Winckel, of Java, described the results obtained with salvarsan in the treatment of frambœsia. The disease affects only half-castes and natives but never Europeans, and prevails in nearly all tropical countries; in some places 90 per cent. of the inhabitants are infected. In a campaign against the infection a quantity of 500 kg. of neosalvarsan was imported to the Dutch East Indies by the Government and 1,600,000 injections were performed. The symptoms usually disappear soon after the first injection, but for a definite cure three or four injections are necessary. In certain districts the disease is rapidly disappearing, but it will take a couple of years to destroy it throughout the Dutch Indies, which have 45 million inhabitants. The Government has had practically no expenses as the cure is very popular among the natives and they willingly pay for the drug, the syringe, and cannulas. Dr. Winckel has approached the Hygienic Committee of the League of Nations suggesting international measures for the destruction of the disease.

### *The Genesis of Fæcal Concretions.*

Before the Berlin Medical Society Prof. J. Pick read a paper on the genesis of fæcal concretion in the appendix. He has examined 500 specimens of fæcal concretions and has found that in 170 of them the nucleus was formed of hair In 14 of them there was hair in the appendix without a concretion. The number of other foreign bodies found in the appendix was relatively small; 80 per cent. of the hair found was human in origin; 10 per cent. was derived from animals, and ½ per cent. from tooth-brushes. In the remainder the exact class could not be ascertained; 50 per cent. of all the concretions occurred in children up to six years of age, whilst concretions were found in 80 per cent. of cases of appendicitis in men and in 20 per cent. of women.

### *Distemper and Influenza.*

Before the Veterinary Society Dr Kantorowitsch lately read a paper on the connexion between distemper and influenza. The diseases, he said, are very similar. Both are spread epidemically and pandemically; the ætiology of neither has yet been ascertained, and they both produce symptoms of an obstinate character in the central nervous system. Together with Dr. Levy and Dr Kuczinski, of the Pathological Institute, he has carried out microscopical investigations in dogs which died from distemper. In the brains of 22 dogs in which there had been cerebral symptoms he found a protozoon identical with that discovered at the Stockholm Biological Institute in people who had died from encephalitis lethargica. He has observed that in cases of distemper the proprietors of the dogs have often been suffering from influenza, and suggests that the dogs may possibly have swallowed the virus in the sputum of their masters. It has never been observed, however, that distemper is conveyed to the human species. Inoculation with the Swedish virus and the distemper virus gave nearly identical symptoms, so that at least a near relation between the two viruses seems likely.

## IRELAND.

(FROM OUR OWN CORRESPONDENT.)

### *The School of Physic, Trinity College.*

THE 200th anniversary of the organisation of the School of Physic in Trinity College was celebrated publicly in 1912 Last week the College held a domestic celebration of the 100th anniversary of the opening of the Medical School Buildings, and Dr. T P. C. Kirkpatrick delivered a lecture in the Theatre of Anatomy on the History of the School of Physic Having recounted the vicissitudes of the School in the eighteenth century, he dealt in detail with the life of James Macartney. This great teacher and organiser was born in Armagh in 1770, and studied anatomy under Hartigan in the school of the College of Surgeons. Moving to London, he was appointed lecturer in comparative anatomy at St. Bartholomew's, where he won a brilliant reputation. In 1813 he was elected professor of anatomy and chirurgery in the School of Physic, and his election produced remarkable changes. An untiring worker, his energy irradiated the entire school. In seven years his class rose from 53 students to 303, and it became impossible to find room for them in the old Anatomy House A new building had to be put up, and eventually the board consented to erect one on "the ground heretofore the bowling green." In its choice of site the board was probably influenced by a desire to keep the school buildings as far as possible from the rest of the college. Macartney appears to have been of rather hasty temper, for in an altercation with the architect he broke his umbrella on the architect's back. In spite of interruptions the building was finished, and on Nov. 1st, 1825, he delivered his inaugural lecture. Until the end Macartney maintained his supremacy, but his desire to rule the School brought about his fall eventually and he resigned in 1837. In the years that followed many great names were connected with the School William Stokes held the post of Regius Professor of Physic from 1840 till his death in 1878. Robert James Graves, whose name was so closely linked with that of Stokes, was King's Professor of the Institute of Medicine from 1827 to 1841, and was, perhaps, the greatest figure in Irish medicine. Other notable teachers were William Featherston-Haugh Montgomery, Robert William Smith, Robert Adams, Thomas Brady, Robert Travers, and Robert Law. In 1874 John Mallet Purser was elected King's Professor, and at once began to lecture, not on medicine, but on physiology. In addition, he gave lectures on practical histology. These lectures became popular, and in 1870 the board authorised an expenditure of £2700 for the building of a laboratory for histology and physiology. Here was started that splendid instruction in practical pathology which was given by Dr. Purser every year till 1895, when Alexander O'Sullivan was appointed lecturer in pathology and the laboratory of pathology was built at the cost of £6000 Dr. Purser continued as King's Professor of the Institutes till 1901, and in 1917 he was elected Regius Professor of Physic. To Prof. Purser's energy and ability as a teacher, as Dr. Kirkpatrick remarked, the success of the school in later years has been in no small measure due.

### *Deplorable Salaries in Co. Mayo.*

A serious position is arising in Co. Mayo owing to the failure of the County Board of Health to deal with the question of the salaries of their medical officers. Before the Board of Health took over the health administration of the county from the pre-existing unions a few years ago, scales of salaries had been adopted in some unions and not in others. There was no unity in the scales adopted, and some were more liberal than others. The Board of Health took over the scales as they existed, with the result that there is a complete lack of system in the salaries at present paid Some salaries rise by scale to a maximum of £250 or £300 a year, whilst others only reach £140 One medical officer has an unchanging salary of £100 During the past few years the Board of Health has been repeatedly asked to adopt a scale of salaries for the whole county, but so far no notice has been taken of the requests. The inadequacy of the salaries is all the more distressing in that in the greater part of Co Mayo there are little or no opportunities for private practice, and the medical officers are almost dependent on their Poor-law salaries. The medical officers have now put forward the demand that a scale equal to that in force in the neighbouring county of Galway should be adopted for Mayo. As the opportunities for private practice are better in the greater part of Galway than in Mayo, the demand is reasonable. In Galway the commencing salary is £250, rising by annual increments of £5 to a maximum of £300. If even such a modest scale were adopted in Co. Mayo it would mean an immediate increase of salary for every single medical officer in the county. Such a change would entail an increase in the rates of 2·1*d.* in the pound. Unless a speedy redress is given to the grievances of the medical officers there is a possibility of a general refusal to work.

### *The Irish Register.*

It was announced in Dublin on Jan. 18th that the Free State Government proposes to introduce legislation next month to extend the existing arrangements with the General Medical Council for a further period of six months.

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LIVERPOOL HEART HOSPITAL.—Appreciation of the importance of preventive treatment in heart disease has led to the establishment of a new institution designed especially to provide accommodation for prolonged treatment in bed for rheumatic and other conditions liable to produce cardiac lesions. A house at 31, Oxford-street, Liverpool, has been purchased and suitably equipped for the purpose. Two wards have been opened, as well as some single bedrooms, and the premises will be extended as soon as funds are forthcoming. An electrocardiograph has been installed. Dr I. Harris has been elected hon. physician and Dr Noel Chamberlain hon. assistant physician to the hospital, and with them is associated a number of distinguished members of the profession in a consultative or specialist capacity.

# Public Health Services.

## MENTAL HOSPITAL REPORTS.

THE *West Riding Mental Hospital* at *Wakefield* has just published its 105th report. Among the 2000 patients the death-rate was 9·04 per cent. for males and 8 per cent. for females, and the recovery rate 24. The recovery among females was much higher than among males, the analysed figures being 16·5 and 32·6 respectively. This is partly accounted for by the large proportion of general paralytics admitted, 14 per cent. of the male admissions being sufferers from this incurable condition, while senile decay accounted for 30 per cent. of the 190 cases which came to autopsy. Much renovation and general repairs have been carried out during the year, including a new motor garage and permanent marquee shelters in six of the wards. The recreation hall has been largely reroofed and a fireproof cinematograph projecting box erected. Many more improvements are still needed, however, in the words of the medical superintendent, "to transform what has in reality been an antiquated prison into a healthy and comfortable hospital." There are far fewer juvenile admissions than there used to be, although suitable treatment is not yet provided elsewhere for these cases, so that many types of mental disease fall between the Lunacy Act and the Mental Deficiency Act and so get but poor attention. The special school, Stanley Hall, has now 28 boys, and the value of the rugs, baskets, stockings, and other articles made by these children was nearly £40 last year. The pathological laboratory has undertaken a good deal of routine investigation and much histological work for teaching and research. Four cases of dysentery were detected during 1924, two of which had probably contracted the disease before admission. The training in practical nursing is now in the hands of a hospital-trained deputy chief nurse, and 15 men and 8 women passed the preliminary examination for the medico-psychological certificate; 36 of the staff now hold the final certificate.

The *Bucks County Mental Hospital* at *Aylesbury* had 670 patients in residence on Dec. 31st, 1924, of whom 468 were usefully employed. Ample provision is made for recreation and the fortnightly cinematograph entertainments and the wireless installation have been greatly appreciated. Parole and money grants have been given in a number of cases and are seldom abused. The recovery rate was 36·2 per cent. The death-rate was 11·2 per cent., an average figure attained as the result of an abnormally high male death-rate (18·6) and a low female rate (5·4)—the lowest for many years. Nine men died from influenza, which was epidemic in the spring. An electric cooking and baking apparatus has been installed, comprising four roasting ovens, two stock-pots of 20 gallons capacity, an egg-boiler for 80 eggs, a boiling table, fish range, grill, four hot cupboards with sliding doors, and two baking ovens to deal with 1000 lb. of bread in five to six hours. The newly appointed dental surgeon visits weekly. The visiting commissioner comments on the number of senile female patients and the necessity for accommodating such cases in infirmary wards, also on the presence of a few juvenile cases who would be better in mental deficiency institutions. With the aid of the chairman's generosity the needs of certain patients for spectacles are being attended to.

The report of the *Inverness District Asylum* shows a slight increase in the number of cases under care, the average number for the year being 674. The recovery rate was 23·5 per cent. and the death-rate 4·7 per cent., a very low figure compared with either previous records of this institution or with the general rate for Scottish asylums. Only one of the deaths was due to pulmonary tubercle, and one more to typhoid, of which there was a restricted outbreak in the summer. No definite cause could be traced. Increasing interest is being taken in the football matches, 18 of which were played during the last season, while the cricket team won five of its 11 matches. As yet there is only one voluntary inmate in this hospital. During the year ten nurses and two attendants passed the final examination for their certificate, two with distinction.

The county of *Hampshire* maintains two mental hospitals. That at *Knowle* had just under 1000 patients resident at the close of the year 1924–25, the number of admissions having fallen markedly during the last two years. The recovery rate was 48·1 per cent. and the death-rate 8·4, both figures showing distinct improvement on previous records. Post-mortem examinations were held on 75 per cent. of the fatal cases. The general health of the patients is showing steady improvement, particularly in respect of colitis, of which there were only five mild cases during the year, instead of an average of 74 for the years 1918–22. For this the new dietary arrangements instituted since the report of the departmental committee and the appointment, two years ago, of a visiting dentist, may be held largely responsible. The investigation of the nine cases of typhoid revealed eight carriers, which should lessen the future incidence. The tuberculosis rate remains the same. The newly installed cinematograph and wireless set have given much pleasure. The patients are encouraged to work about the hospital grounds and in the various shops and workrooms, and many useful articles have been made, particularly in the new basket-making department. Parole is extensively used. One ward is being reconstructed for the malarial treatment of general paralysis. Eleven attendants and four nurses obtained their certificate. The admission rate at *Park Prewett* has gone up and there were 1140 patients in residence at the end of the year. The recovery rate was 23·5 per cent. and the death-rate 6·96 per cent. The health of the patients was satisfactory and there were no epidemics. The hospital has wireless and cinematograph sets, and three detached blocks are used exclusively by patients on parole. A lady gardener has been appointed to supervise the women patients who can benefit from garden and poultry-farm work, while others are employed in the workshops and about the building. An automatic electrically-controlled continuous bath has been fitted up. Nine male and five female nurses obtained their certificate, bringing the total to 12 and 11 respectively.

The *Stirling District Board of Control* has over 800 patients in its institution at *Larbert*, including three voluntary boarders. The recovery rate for the year 1924–25 was 41·7 per cent., in spite of the fact that 46 per cent. of the admissions were incurables, 17 being senile cases, 16 general paralytics, and 15 mental defectives. Eighteen patients were sent out on probation during the year and only two returned as unsuitable. The death-rate was 11·4 per cent. and the cause was verified by post-mortem examination whenever permission could be obtained. There were no epidemics. Three cases of typhoid fever occurred, one of them in an advancing case of general paralysis. After the fever he was so greatly improved that he was able to return home and engage in his former employment quite satisfactorily. The farm is a most successful part of the institution, both financially and therapeutically, and it has been extended by the purchase of an estate of over 900 acres. It is hoped to establish a colony for mental defectives on this new estate, a most desirable procedure and one for which the need is pressing. It is now assumed that all nurses will take the M.P.A. certificate and they are not placed on the permanent list until the preliminary examination is passed. During the year nine nurses and eight attendants obtained thei certificate. This is one of the institutions provided with a "tuckshop," much appreciated by the patients.

The *East Sussex County Mental Hospital* at *Hellingly* is one of the many mental hospitals which are overcrowded. It has 1165 patients, a slight increase on the previous year. The recovery rate was 41, and the death-rate 7 8 per cent. Seventy patients were sent out in the course of the year on trial, 36 with a money grant of 15s. per week. Only six relapsed. A severe epidemic of influenza attacked patients and staff in the spring. Sporadic cases of scarlet fever and paratyphoid B also occurred, but dysentery has been considerably reduced. Antidysenteric serum has become the routine treatment. General paralytics had been treated by malaria for a few months only before the publication of the report. The physical drill classes for female patients have been very successful, both mentally and physically. Verandahs are to be erected and a new and excellent water-supply has been provided on the estate. A new operating theatre is to be provided; last year the visiting surgeons performed over 20 operations in an ordinary ward. An ophthalmic surgeon has been appointed and saw 300 cases during the year, while 757 attendances were made at the dental sessions. In many cases where septic conditions in the mouth have been rectified, considerable improvement has taken place in the mental and general health. About 50 per cent. of the patients are usefully employed. The laboratory has been thoroughly equipped and a pathologist appointed: he has been largely occupied with the investigation of dysentery, and points out that so long as open bucket latrines remain in the patients' courts cases of dysentery are bound to occur. The pass-lists in the nurses' examination for their certificate have improved since the appointment of a sister tutor, but, like so many other mental institutions, Hellingly finds it exceedingly difficult to find suitable female candidates.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN. 9TH, 1926.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 235 (last week 203); scarlet fever, 1750; diphtheria, 1012; enteric fever, 43; pneumonia, 1761; puerperal fever, 60; cerebro-spinal fever, 7; acute poliomyelitis, 4; acute polio-encephalitis, 2; encephalitis lethargica, 55; dysentery, 6; ophthalmia neonatorum, 114. There were no cases of cholera, plague, or typhus notified during the week.

Of the 235 cases of small pox, 25 (last week 21) were reported from the county of Derby; 110 (last week 90) from the county of Durham, now widely scattered over boroughs, urban and rural districts; 11 each from the counties of Northumberland and Nottingham; 1 from the East Riding of Yorkshire (Kingston-upon-Hull); and 67 from the West Riding, 58 of which (last week 48) occurred in Rawmarsh.

*Deaths.*—In the aggregate of great towns, including London, there were 5 (1) deaths from enteric fever, none from small-pox, 72 (33) from measles, 16 (3) from scarlet fever, 30 (2) from whooping-cough, 53 (20) from diphtheria, 63 (17) from diarrhœa and enteritis under 2 years of age, and 111 (24) from influenza. The figures in parentheses give the numbers for London itself. The number of deaths from influenza is substantially less than last week—namely, 123 (27).

# The Services.

## SMALL-POX AREAS.

FLEET orders have been issued giving a recapitulation of the restrictions in regard to leave for officers and men proceeding to any town or district in which an outbreak of small pox has been notified. For the present these restrictions operate in Ashington U.D., Bedlingtonshire U.D. (Northumberland); Blackwell R.D. and Derby (Derbyshire); Blaydon U.D., Chester-le-Street U.D., Easington R.D., Gateshead, Houghton-le-Spring R.D., Lanchester R.D., Ryton U.D., and Sunderland R.D. (Durham); Hucknall U.D. and Sutton-in-Ashfield U.D. (Notts); Kingston upon-Hull, Middlesbrough, Rawmarsh U.D., and Sheffield (Yorkshire).

## ROYAL NAVAL MEDICAL SERVICE.

Surgeon Rear-Admiral J. F. Hall, C.M.G., has been appointed an Honorary Surgeon to the King in place of the late Inspector General of Hospitals and Fleets, Sir Henry F. Norbury, K.C.B., K.H.S.

Surg.-Capt. W. L. Martin has joined the staff of the Royal Naval Hospital, Plymouth.

### ROYAL NAVAL VOLUNTEER RESERVE.

The King has approved of the award of the Royal Naval Volunteer Reserve Officers' Decoration to Surg. Cmdr. D. D. F. Macintyre.

## ROYAL ARMY MEDICAL CORPS.

Lt.-Col. R. N. Hunt, half-pay list, late R.A.M.C., retires on retd. pay on account of ill health.

Lt.-Col. J. H. Robinson retires on retd. pay.

### TERRITORIAL FORCE.

Lt.-Col. V. T. Carruthers (Maj., Res. of Off.) resigns his commn. in the T.A. Capt. F. G. Leacher to be Lt.-Col. and to command the 137th (North Midland) Field Ambulance.

## ROYAL AIR FORCE.

John D'Isney Rear is granted a short service commission as a Flying Officer for three years on the active list, and is seconded for employment at Royal Sea Bathing Hospital, Margate.

## INDIAN MEDICAL SERVICES.

The services of Maj. J. B. Hanafin, officiating director of public health, Assam, have been placed at the disposal of the Government of India. Maj. J. L. Sen, M.C., has been confirmed as a Civil Surgeon, Assam. Lt.-Col. F. L. Wilson officiates as Residency Surgeon and Chief Medical Officer, Baluchistan, vice Lt.-Col. L. J. M. Deas on leave. Maj. W. O. Walker has been appointed Civil Surgeon, Serampore. Lt.-Col. H. G. Stiles Webb has been reposted as Officiating Director of Public Health, Central Provinces. Lt.-Col. W. Davis to be Civil Medical Officer of Ranikhet, vice Maj. T. T. H. Robinson. The following have been granted leave: Maj. E. C. Doyle, acting Inspector-General of Prisons; Maj. E. S. Phipson, Health Officer, Port of Aden, and Medical Officer, European General Officer, Aden; Lt.-Col. W. O. S. Murphy, Director of Public Health, Government of Bombay; Lt. H. B. Rosair, Superintendent of Jails, Fatehgarh. Maj. B. F. M. Newland, civil surgeon, has been granted an extension of leave. Lt.-Col. W. R. Battye has been posted as Administrative Medical Officer, Central India, and Residency Surgeon, Indore, vice Lt.-Col. J. R. J. Tyrrel, granted leave. Lt.-Col. J. Cunningham, late Director King Institute, Guindy, has been appointed Director of the Pasteur Institute of India. Lt.-Cols. C. A. Sprawson, Principal, King George's Medical School, Lucknow, and J. Hunter, civil surgeon, Lucknow, have been appointed members of the United Provinces Medical Council, vice Maj. G. J. Burke and Lt.-Col. Hugh C. Buckley. Lt.-Col. G. Tate, Officiating Inspector-General of Civil Hospitals, Punjab, has been appointed Principal and Professor of Surgery, King Edward Medical College, Lahore, vice Lt.-Col. H. H. Boone, granted leave. Capt. S. W. Hayes, civil surgeon, Dalhousie, has been appointed Professor of Operative Surgery, King Edward Medical College, Lahore. Capt. G. E. L. Simons acts for him. Lt.-Col. W. D. Ritchie, civil surgeon, Darrang, has taken over charge of Jagpur Jail from Maj. J. F. James. The following have been granted leave: Lt.-Col. J. G. N. Stokes, Director of Public Health, United Provinces; Lt.-Col. W. J. Powell, Inspector-General of Prisons, Central Provinces. Maj. H. H. King, Director of the Pasteur Institute of India, officiates as Director of the King Institute of Preventive Medicine, Guindy, Madras. Lt.-Col. C. L. Dun, Director of Public Health, United Provinces, has been appointed a member of the United Provinces State Board of Medical Examination, vice Maj. W. A. Mearns, resigned. Lt.-Col. J. W. D. Megaw, Principal, Calcutta School of Tropical Medicine and Hygiene, has been appointed Honorary Surgeon to the Viceroy, vice Col. R. P. Wilson, late Acting Surgeon-General with the Government of Bengal. Maj. P. M. Rennie, civil surgeon, has been appointed to the executive and medical charge of the District Jail, Hoshangabad.

Dr. H. W. Gush, senior medical officer, West African Medical Staff, has been appointed to be a surgical specialist in the Gold Coast.

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**GLASGOW ROYAL INFIRMARY.**—The annual report states that the managers are *considering* preliminary steps towards the establishment of a new biochemical department, and that the Muirhead trustees have enabled them to establish two post-graduate research scholarships for medical women of £100 each, tenable for a year, and renewable at the option of the trustees. There were nearly 11,000 in-patients, an increase of 1200 on the previous year, and nearly 52,000 out-patients, an increase of 3261. The ordinary expenditure was £110,000, and the year's deficit £25,000.

# Correspondence.

"Audi alteram partem."

## ACUTE HÆMORRHAGIC NEPHRITIS.

*To the Editor of* THE LANCET.

SIR,—The interesting study of acute hæmorrhagic nephritis in children by Dr. W. G. Wyllie and Dr. A. Moncrieff which you publish this week, brings to notice an aspect of nephritis which has been overlooked by many writers on renal disease. Several years ago my attention was drawn to the occurrence of severe grades of hæmaturia in the course of what could be regarded clinically as nothing else than subacute or chronic parenchymatous nephritis—to use the classification of nephritis commonly accepted in this country. Since that time I have observed 17 examples of the condition, all the patients being in the clinic of my chief, Prof. W. K. Hunter, at the Glasgow Royal Infirmary. I hope to publish the records of these cases shortly, but a brief reference to them may be of present interest in connexion with the paper by Dr. Wyllie and Dr. Moncrieff.

My cases have a general resemblance to those which they describe, but differ from them in that (with two exceptions) the patients were all young adults. Excluding one patient 8 years old and another 54 years old, the ages ranged from 15 to 40, and most of the patients were between 15 and 30 years of age. The hæmaturia was often very copious and in many instances it persisted over periods of weeks or months with only occasional intermissions. The longest continuous record of hæmaturia in the series extends over 18 months, but there were other cases in which the bleeding had not ceased on dismissal from hospital.

That abundant blood in the urine is by no means a rare symptom in nephritis is shown by the fact that in a series of 100 consecutive cases of nephritis of all types admitted to Prof. Hunter's wards I found the following incidence of hæmaturia: No hæmaturia 44, hæmaturia lasting not more than seven days after admission 19, hæmaturia lasting eight days or more 37 cases. Further analysis shows that of the 37 cases with persistent hæmaturia some were examples of acute nephritis (primary attacks of exacerbations of a previous nephritis) and some were examples of chronic interstitial nephritis. There remained, however, 14 cases in which the nephritis was of either the subacute or the chronic parenchymatous variety. I doubt if this form of hæmorrhagic nephritis can be regarded as identical with that described as occurring in children by Dr. Wyllie and Dr. Moncrieff, in spite of many points of similarity between their cases and those which I have seen. Apart from the age-incidence, there are other differences. Thus, I can find nothing in the latter series of cases to suggest any infective or septic ætiological factor such as is suggested by your contributors. It is, perhaps, merely a coincidence that the case in my series which most closely resembled theirs in its earlier stages was the only one which proved fatal. This patient was a boy, aged 8 years, whose first symptom was profuse hæmaturia, and who had blood in his urine almost continuously till his death from uræmia a year and a half later.

Dr. Wyllie and Dr. Moncrieff make reference to the possibility of there being quantitative alterations in the blood proteins in such cases. It may interest them to have the following data in this connexion. From the results of such estimations in seven samples of plasma from four of my cases (using Wu's method) I found: Total proteins, maximum = 8·500 per cent.; minimum = 4·808 per cent.; mean = 6·431 per cent. Albumin, maximum = 4·946 per cent.; minimum = 2·720 per cent.; mean = 4·031 per cent. Globulin, maximum = 3·377 per cent.; minimum = 0·170 per cent.; mean = 2·080 per cent. Fibrinogen, maximum = 0·385 per cent.; minimum = 0·187 per cent., mean = 0·293 per cent. I do not wish to comment upon these results further than to say that while the mean values indicate a slight relative decrease of albumin and a slight relative increase of the globulin fraction (as judged by the normal cases recorded by Wu (1922)), my experience of such estimations of the plasma proteins is that the results show ranges of variation, even in normal cases, so great that it is unwise to attempt to draw conclusions from the examination of small series of cases. With regard to the other chemical features of these cases of hæmorrhagic nephritis it may be said briefly that there was in *most* patients no indication of gross nitrogen retention—the blood-urea and non-protein nitrogen being normal or only slightly above normal, and the response to the urea-concentration test being usually satisfactory.

So far I have not been able to find any adequate explanation of the mechanism by which the bleeding is produced in this form of nephritis, but I feel as sure as one can be without histological evidence that the bleeding is not due to congestion alone. One is tempted to try to find analogies between this form of nephritis and such hæmorrhagic conditions as the purpuras, but I have never found any gross reduction in the number of blood platelets such as occurs in the latter.—I am, Sir, yours faithfully,

J. N. CRUICKSHANK, M.D., F.R.F.P.S. Glasg., M.R.C.P. Lond.,
First Assistant to the Muirhead Professor of Medicine Glasgow University; Director, Research Department, Glasgow Royal Maternity and Women's Hospital.

Jan. 16th, 1926.

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## INTRA-URETHRAL NEGATIVE PRESSURE DURING COITUS.

*To the Editor of* THE LANCET.

SIR,—An argument is occasionally put forward by those who are sceptical regarding the efficacy of immediate self-disinfection as a means of preventing gonorrhœa, to the effect that during the act of coitus a suction action is produced whereby infective matter is carried down the male urethra beyond the reach of disinfectants applied with a swab or sponge. I am unable to trace this argument as having been brought forward by any witness before the Committee of Inquiry, presided over by Lord Trevethin, although it is recorded in the report, published in 1921, of the Venereal Disease Committee organised by the National Birth-Rate Commission. On page 3, Part II., of this report, Mr. Charles Gibbs, F.R.C.S., is reported to have said:—

> "One can understand that in large military areas where you have excellent doctors who are drilling and teaching the men how to use it (the prophylactic packet) one can understand that after some time one would get good results; but for the ordinary public to say 'get up in a corner and wash the penis in permanganate of potash' is useless. The danger time is the time of intercourse. The shape of the male organ is such that the orifice of the glans penis opens in the introducing movement and closes in the withdrawing action *thus sucking infection into the urethra* [my italics], and I do not think it will have any effect to apply disinfectant on the outside in many cases."

No one will deny Mr. Gibbs's statement that the meatus "opens in the introducing movement and closes in the withdrawing action," but his deduction "thus sucking infection into the urethra" cannot be so easily accepted. On the contrary, I believe that the closure of the meatus during the withdrawal action prevents the possibility of suction of vaginal fluids into the male urethra, the lips of the meatus acting as a valve and closing *immediately* the withdrawal action commences, and acting as a valve closing the more firmly the more vigorous the withdrawing action.

It is possible that a negative pressure or suction action may be produced in the *vagina* on every withdrawal stroke, the vagina being the cylinder and the penis the piston, but such suction action in the vagina would tend to *prevent* the entrance of infective matter into the male urethra rather than to encourage it. If Mr. Gibbs's suction theory was based on an erroneous interpretation of the mechanical processes taking place in the penis and vagina during coitus, then it necessarily follows that all argument founded on such false premises falls to the ground.

I am, Sir, yours faithfully,
Jan 18th, 1926. H. WANSEY BAYLY.

*** We need more material on which to base opinions as to the value of prophylaxis, especially as to how quickly organisms placed on the meatus spread up the urethra.—ED. L.

## THE TREATMENT OF HUMAN ANTHRAX.

*To the Editor of* THE LANCET.

SIR,—In your issue of Jan. 0th Dr. A. Pijper, of Pretoria, warmly recommends the salvarsan treatment of human anthrax. Some years ago a man with 12–15 sores distributed over the body came to me for treatment. Smears were taken from several vesicles and the anthrax bacillus was found in each. The sores were frozen with ethyl chloride, the centres scooped out and touched with carbolic acid, and 1/100 sol. carbolic acid injected into the surrounding tissues. The sores varied from some with blackened centre and œdema of tissue to small hard lumps almost cartilaginous when cut out. The patient made a good and painless recovery. Three weeks before he had buried a cow that died of an unknown disease. This case helped to show that cutaneous anthrax can be controlled in various ways, and I wonder if there is any record of pulmonary anthrax having been successfully treated by neosalvarsan.

I am, Sir, yours faithfully,
Cowes, Isle of Wight, Jan 17th, 1926. L. P. GIBSON.

## INSTRUMENTAL MIDWIFERY.

*To the Editor of* THE LANCET.

SIR,—Many years ago I was summoned to appear before the Master of Rotunda to explain why, when attending confinements outside the hospital, I never took to the case a midwifery bag. The reply was that "I did not think it was necessary." Next, I was asked to explain in detail how I conducted an ordinary confinement? The answer was, "I inquire when the labour commenced; count the woman's pulse, note the character of the pains, disinfect my hands in a strong solution of biniodide of mercury, palpate the abdomen, examine over the sacrum for œdema, and listen to the fœtal heart. Here is what I use in lieu of a midwifery bag," and produced from my waistcoat pocket a large pill-box containing biniodide of mercury tabloids. "My cases never show pyrexia during the puerperium, as I seldom find it necessary to examine P.V." The Master handed me a short list of articles to take to every confinement that in future I attended.

On my way back to the residents' quarters I met a doctor from the State of Illinois to whom I told my troubles, that I was on duty that day and could not comply with the Master's orders. He kindly offered to lend me the few articles which appeared on the Master's list and took me to his cubicle for this purpose. His instruments were truly wonderful; he seemed to possess everything that any surgeon could want under any circumstances. Leaving him, uneasy in my mind, I was guilty of a discourteous act for which I have ever since been secretly ashamed—I went and examined the out-patients' case book and found that *nearly all his patients were running temperatures.* Since those days, like many others, I have spent very many sleepless nights—waiting for infants to be born naturally. The counterfoils of my death certificate book are still without a maternal blemish. I believe this result has been accomplished on the idealistic lines expressed by Prof. Ranken Lyle at the meeting of the Edinburgh Obstetrical Society reported in your last issue. I am convinced that careful antenatal care with induction in certain cases when the child is viable will meet many cases which, allowed to drift, lead to Cæsarean section or craniotomy.

Someday midwifery forceps may be of historical interest only. Prof. Lyle's idealism is easier to attain than casual observation might lead one to believe. It certainly should not be possible to quote statistics embodying thousands of cases of craniotomy and Cæsarean section. Suppose for one instant that on opening your morning newspaper it announced the number of infants delivered by forceps in the British Isles in the preceding 24 hours! Are forceps *really* necessary as frequently as they are used? The fact that patients arrive in labour at term at the maternity hospitals requiring urgent operations is irrefutable evidence that someone or other has failed to live up to Prof. Lyle's idealism. I do not know Prof. Lyle, but I think that he will agree with me that the way to reduce maternal mortality is to have a coroner's inquest on every woman who dies in childbirth and let the death be attributed to misadventure, make conception notifiable early, and let the principal work of the maternity hospital be the care of the expectant mother.—I am, Sir, yours faithfully,

J. HARGREAVES ROBINSON.
Harley-street, W., Jan. 18th, 1926.

## PROFESSIONAL CRITICISM OF THE GENERAL MEDICAL COUNCIL

*To the Editor of* THE LANCET.

SIR,—I am sorry to have misread Dr. Gordon Ward's meaning, and apologise to him for having done so. I am not sorry, however, that I wrote my previous letter, because as I misread Dr. Ward's meaning it is almost certain that others have done the same. The matter is of some importance, as I fear that there are officials of approved societies, and even members of insurance committees, who believe that doctors are capable of doing such things. Now there is need of amendment of the certification rules under the National Insurance Act and also of improvement in the ways in which these rules are interpreted and carried out by certain officials of some societies. It is difficult to say which of these is the greater need, but it is certain that the advance must come by mutual agreement between the officials of the societies who have to make payments under the Act, and the doctors who advise them, an end to which we are not likely to attain if there is any suspicion of one side by the other.—I am, Sir, yours faithfully,

Welbeck-street, W., Jan. 19th, 1926. T. B. LAYTON.

## GLYCOSURIA AND LIFE ASSURANCE.

*To the Editor of* THE LANCET.

SIR,—In your issue of Jan. 0th you comment on the attitude of life insurance companies towards clients whose urine is found to contain a copper-reducing substance, and suggest that they are not quite fairly dealt with. May I point out that you do not take into consideration the following important matters—namely, that owing to the apparent dislike of a section of the public to undergo medical examination—hence the growing popularity of the non-medical schemes—the applicant, if medically examined and found to be glycosuric, is often not prepared or willing to incur the expense or time involved in having his blood-sugar curve taken. It is surely no part of the duty of the company, even if the applicant is willing, to spend time and incur expense in conducting such investigation. In three cases lately examined where such investigation was carried out by the applicants, the blood-sugar indicated in one the probability of diabetes and in the other the practical certainty of it. Yet these cases might otherwise have been easily passed as ordinary risks under the non-medical schemes as everything else appeared normal.

I am, Sir, yours faithfully,
ARTHUR T. DAVIES, M.D., F.R.C.P.
*Tokenhouse Yard, London, E.C.*, Jan 11th, 1926.

# THE TWORT-D'HERELLE PHENOMENON.

*To the Editor of* THE LANCET.

SIR,—We should like to offer a few remarks on the so-called action of transmissible bacterial lysin on dead bacteria. In a recent number of THE LANCET[1] F. W. Twort reports the following experiment:—

> "A new strain of the lysable white micrococcus and fresh active lysin were obtained from vaccinia. The micrococcus was isolated free from lysin, and grown on agar slopes for 24 hours; from these a moderately turbid emulsion was made with normal saline. The emulsion was heated in a water-bath at 60° C. for one hour, then mixed with an equal quantity of ordinary sterile peptone-beef broth, and 2 c.cm. of the mixture pipetted into each of four sterile test-tubes. Tube 1 received no addition. Tube 2 was inoculated with a loopful of pure living micrococcus. Tube 3 was inoculated with two drops of filtered lysin. Tube 4 was inoculated with two drops of filtered lysin and a loopful of the living micrococcus. This experiment throughout the paper will be referred to as the standard experiment. The four tubes were incubated at 37° C. After 24 hours tubes 1 and 3 showed no visible change. Tube 2 showed an increase of turbidity, while tube 4 showed a marked clearing of the emulsion."

From these facts Twort infers that there is lysis of dead bacteria when the lytic agent is being freshly produced in the presence of living bacteria of the same variety. About two years ago we performed, with the same results, experiments entirely identical, and for a while we had the same opinion as Twort has since expressed. But a more complete analysis of the phenomenon afforded a quite different interpretation, as will be seen. Although our results have already been briefly reported,[2] it will be of interest to recall here the circumstances that led us to our investigations and to our conclusions. When to a tube of broth seeded with staphylococci an extremely small amount of filtered lysin is added, the growth is not inhibited and an apparently normal culture is obtained. A few days later, however, when there is no longer growth and the bacteria are at rest, or perhaps already degenerating, the culture gradually becomes completely clear. It is therefore evident that, contrary to the usual observations on the transmissible lysis of other bacteria—e.g., the colon bacillus—a bacterial lysis occurs, in this case in conditions where bacteria do not grow. We therefore hoped that in this particular instance we could perhaps obtain the lysis of dead micrococci as well.

*Experiment.*—From a 24-hour agar slant culture of staphylococci a suspension was made and thoroughly washed. Heated for one hour at 62° C., the suspension was then diluted in sterile broth until the opacity was equal to that of a broth culture of staphylococci, and then divided in a few sterile test-tubes, half of these tubes receiving no addition while to the others was added two drops of filtered lysin. After a week at room temperature the turbidity of the first tubes remained unchanged, while the second set of tubes showed a partial but quite striking clarification.

In this experiment, then, dead staphylococci were partially dissolved by the filtered lysin. The result was clear-cut, and because of its significance we reported it at once in a preliminary note at the Société de Biologie. We very soon regretted our haste. When repeating these experiments later on we obtained very irregular results. Sometimes mixtures of dead micrococci with filtered lysin showed a marked clarification, while in many other instances not the slightest clearing could be noted, even after several weeks. By plating these mixtures we were then aware that the unchanged mixtures were always perfectly sterile, while the clarified ones contained a few living staphylococci that had been introduced into the mixture either with an insufficiently heated suspension or with a filtered lysin which had been passed through an unsatisfactory filter. Accordingly, the following experiments were performed with carefully controlled suspensions of dead staphylococci and carefully controlled filtered lysin.

*Experiments.*—The broth suspension of dead staphylococci was pipetted into each of four sterile test-tubes. Tube 1 received two drops of sterile broth. Tube 2 received one drop of sterile broth and one drop of living culture of staphylococci. Tube 3 received one drop of sterile broth and one drop of filtered lysin. Tube 4 received one drop of filtered lysin and one drop of living culture of staphylococci. After three days in the incubator at 37° C. tubes 1, 2 and 3 remained turbid, tube 2 being sometimes even more turbid than the others; tube 4 showed a striking, although incomplete, clearing.

The filtered lysin alone is thus unable to dissolve dead bacteria, but when associated with living bacteria it brings about a marked clarification. Control experiments proved that such a result could only be obtained with bacteria of the same species. Experiments and conclusions were exactly the same as those recently reported by Twort. Our next step, however, taught us that our interpretation was erroneous.

*Experiment.*—The preceding or standard experiment was repeated in exactly the same way, except that instead of using broth suspensions of bacteria we used saline suspensions. After three days' incubation at 37° C. tubes 1 and 3 were unchanged, but tube 2 this time was exactly as clear as tube 4.

Therefore, when the process happens in saline, it becomes evident that it is not the lysin that dissolves the dead bacilli, it is the living bacteria that are responsible for it. In fact, the same thing occurs in broth; the living bacteria introduced in tube 2 dissolve the dead bacteria in broth as well as in saline, but in broth they multiply actively and conceal by the opacity of their own growth the clearing of the dead suspension. The presence of lysin, perfectly meaningless when the experiment is done in saline, plays merely a secondary rôle when in broth by preventing the growth of the living bacteria to mask the clarification they brought about.

That such is the real meaning of the preceding experiments would be thoroughly proved if we could obtain the same result in broth as in saline by preventing the growth of living bacteria by some other means. This was realised as follows: Since Jaumain's experiments[3] it is known that in sealed tubes—i.e., in confined areas—staphylococci do not grow.

*Experiment.*—In a gas flame, a stricture was made in the middle of four sterile test-tubes. The bottoms of these tubes were filled with broth suspension of dead staphylococci up to the stricture and then convenient amounts of filtered lysin and living bacteria were added according to the standard experiment. Immediately after the stricture was closed in the flame and the sealed tubes were incubated at 37° C. for three days. Tubes 1 and 3 remained turbid; tubes 2 and 4 were clear.

Exactly as in the saline experiment, the living bacteria in tube 2 dissolved the dead emulsion as well as in tube 4, but as they were unable to grow in the sealed tubes the clearing remained visible. If we now open the tube 2 and pipette aseptically the clarified mixture into an ordinary test-tube, after a few hours growth at 37° C., the living bacteria have multipled and, as in the standard experiment, mask the clearing of the dead organisms. Living bacteria alone dissolve the dead ones; the presence of the lysin in broth suspensions is necessary to prevent the growth of the living cocci which mask the clearing of the dead suspension, and is superfluous when the experiment is done in saline or in sealed tubes.

In further experiments we were able to demonstrate the dissolution of the dead cocci by the living ones not only in liquid suspensions but also on solid media. The temperature at which the bacteria were killed is indifferent. It is a nutrition phenomenon; the living bacteria multiply to some extent while the dead cocci are reduced to minute Gram-negative granules. It affords not only the real interpretation of the standard experiment but also an explanation of Jaumain's phenomenon—i.e., the spontaneous clearing of broth cultures of staphylococci in sealed tubes. It is easy to show that in a confined area most of the cocci very quickly die, while the few that remain alive dissolve the dead cocci. This mechanism of auto or isophagy is available also for the ordinary autolysis of bacteria. It is one of the aspects of the necessary destruction of dead bacteria on the earth, this being also realised to a great extent in nature by heterophagy One of us, with Sara Dath,[4] has recently studied the remarkable lytic action that different micro-organisms, and especially mould like streptothrix, exert on a great number of bacteria, a phenomenon which was also studied independently by R Lieske [5]

We conclude, therefore, that the dissolution of dead cocci observed in the recent experiments of Twort and in our former experiments, apparently due to the lytic agent, is, in fact, produced by the living cocci, the rôle of the lysin being only of a secondary importance by preventing the growth of the living bacteria from concealing the clearing they had brought about Up to the present time no evidence has been brought forward to indicate that the transmissible bacterial lysin or bacteriophage is able to dissolve dead bacteria. It is of importance because the dissolution of dead bacteria by the transmissible lysin would be a most significant fact for the understanding of the Twort-d'Herelle phenomenon

We are, Sir, yours faithfully,
André Gratia.
Bernice Rhodes.

Pasteur Institute Brussels, Jan 11th 1026.

*Bibliography*—1 The Lancet, 1025 ii., 042. 2 Compt Rend Soc. de Biol 1923, lxxxix., 1171, 1024 xc. 610 3. Ibid 1922 lxxxvii., 700 4 Gratia A. and Dath, S Ibid. 1924 xci., 1443, 1925, xcii 461 1120 1925 xciii. 451 5. Morphologie und Biologie der Strahlenpilze Leipzig, 1921 p. 111

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## MEDICAL SERVICES TO INDUSTRIAL FIRMS

*To the Editor of* The Lancet

Sir,—May we bring to the notice of all medical practitioners specially interested in industrial medicine the recent formation of an association of British industrial physicians and surgeons under the title of the Council of Industrial Medicine" This body commenced its existence a year ago as the British Section of the International Medical Congress on Industrial Accidents and Diseases, which held its fourth meeting at Amsterdam in September last, and it has now been incorporated in the Federation of Medical and Allied Services. Its objects are to promote the study of this important branch of preventive medicine; to enable practitioners thus engaged to meet and discuss common problems, and to provide a source of information on industrial health questions. Already the medical officers of a number of the leading industrial firms in London and the provinces have joined the Council, but it is known that there are many practitioners similarly engaged whose names cannot readily be ascertained To all such full particulars will gladly be sent on receipt of a postcard addressed to the Secretary, Council of Industrial Medicine, Federation of Medical and Allied Services, 12, Stratford place, London, W 1

We are Sir, yours faithfully,
D A. Coles,
Chairman.
Edgar L. Collis,
Thomas Oliver,
Theodore Thompson,
Vice-Chairmen
N Howard Mummery,
Hon. Medical Director
H S. N Menko,
Hon Foreign Medical Secretary

Jan. 19th 1926

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The late Dr. W P Hilliam—William Percy Hilliam, who died on Jan. 11th at his residence at Storr Hill Bradford Yorks studied at the Sheffield School of Medicine at Edinburgh and at St. Thomas's Hospital, London, qualifying L.S.A in 1803 He was an ardent and accomplished horseman, a keen sportsman, and an assiduous follower of the Fitzwilliam hounds. It is recorded that in 1881 when he was out with the hounds, his horse took fright and in bolting cleared a wagon and four horses making a distance of 38 feet from taking off to landing. Dr Hilliam leaves a widow and one son. Brigadier-General Edward Hilliam, who served with the Canadian Contingent, is his younger brother

# Obituary.

## GEORGE HERBERT HUNT, M D Oxf, F R.C.P Lond

The death, at the early age of 41, of Dr G H Hunt, physician to Guy's Hospital, which occurred on Jan 9th, has already been announced in The Lancet

George Herbert Hunt was educated at Rugby School and was in Mr Whitelaw's House He went up to Christ Church, Oxford, where he began to study medicine, taking second-class honours in the Final Honour School of Physiology in 1006 It was at Oxford that he carried out his first piece of research, namely, the testing of the nitrogen excretion in the urine of a perfectly healthy man immediately after the excision of one kidney, an operation necessitated by an accident at football; it was concluded that the other kidney at once took up adequately the complete excretory function. This was long before the days of blood urea estimations, so that any temporary retention could not be tested This, as so much else of Hunt's research work, was carried out in collaboration with others making it not always easy to separate out his particular contribution He was an absolutely unselfish worker, taking endless pains to do his part of the work efficiently

Dr G. H. Hunt

Hunt entered Guy's Hospital in 1907, where he early developed an exceptionally keen clinical faculty He held the appointments of clinical assistant, out patient officer and house physician, and was appointed medical registrar as soon as his time as house physician was completed Two years later, in 1913, he was appointed assistant physician and he became full physician to the hospital as recently as last summer In early days he was a little nervous about passing examinations, though he always sailed through with flying colours, in later life he lost this diffidence and became a first-rate physician and an excellent teacher In 1914 Hunt served in the 1/2 London Casualty Clearing Station in France, in 1916 at the No 25 General Hospital, B E.F, in 1916–17 at the Royal Military Hospital, Devonport, in 1917 at the Royal Victoria Hospital, Netley, and in 1917–19 at Cambridge, where he worked in close coöperation with the R.E Experimental Station, Porton. He was mentioned in despatches in 1915 and gained the rank of Brevet-Major, R.A.M.C (T) He was one of the earliest to describe the new disease now commonly called "trench fever" but his most important work was carried out at Cambridge in collaboration with Dr J Barcroft and others on the later effects of gas poisoning and the results of oxygen treatment The conclusions may be summed up as follows: Gassed subjects develop a small degree of polycythæmia and there is delay in the length of time that it takes for the pulse to become normal after exercise After treatment for five days in an oxygen chamber the pulse returns to its normal value more quickly, the polycythæmia disappears, and the patient's symptoms—e g, the attacks of nocturnal dyspnœa, the præcordial pain—are much improved While working at Cambridge he also described a method of measuring dyspnœa by calculating the total pulmonary ventilation during the second, third, fourth, and fifth minute after a given exercise was completed and dividing this number by the pulmonary ventilation during four minutes of rest previous to the exercise This dyspnœa ratio was found to be the most constant of the respiratory data obtained. The value increased as the exercise became more strenuous, was lower with untrained than with trained individuals, and still lower in the case of certain pathological cases and of men who had been gassed.

At the end of the war Hunt returned to Guy's Hospital, taking up again the clinical and teaching work that he had left in 1915. In particular he threw much of his energies into the organisation of the massage department. He had been appointed physician in charge when the department was opened in 1913, and was also lecturer in medicine to the massage students. He used to visit all the medical cases for which exercises and massage were prescribed by members of the staff, although later on he gave up the nervous cases. He was particularly interested in the curative effect of physical exercise and massage on the heart and lungs, and as a result of his experience in the department he formulated definite rules by which exercises were graduated as regards their severity. It is fortunate that this work was published in the *Guy's Hospital Reports* of last year. For this purpose he divided heart cases into three groups: (1) cases which had recently suffered from acute carditis; (2) cases with signs of cardiac failure; (3) cases with effort syndrome. Exercises of gradually increasing difficulty were ordered, but the rate of increase was slowest in the first groups and most rapid in the last group. The masseuse was instructed to look for a rise in pulse-rate as the criterion as to whether the exercise was too hard or not. Closely related to this work is a paper, also in the *Reports*, dealing with the "pulse-ratio"—i.e., the ratio of the number of heart-beats, counted during the first two minutes after exercise, to the resting value for one minute. This method was introduced, as he found that the more usual clinical method of determining cardiac efficiency—viz., measuring the length of time it takes for the pulse to return to the resting value—led to uncertain results. The exercise chosen for the test is of the simplest kind—stepping on and off a block, 13 inches high, for three minutes. The number of steps per minute for a particular case is chosen, so that a pulse-ratio near to the value 2·5 is obtained. Knowing the number of steps that produces this value in the healthy trained individual (and calling it 100) it is possible to get an expression for the percentage efficiency of the individual in question. A further paper in the *Reports* on the exercises used in pulmonary cases must be read in the original, as a considerable variety of methods are used in cases of non-expansion of the lung after empyema, in pleurisy, and in the evacuation of bronchiectatic cavities. His work on physical exercises at Guy's Hospital led him to take a keen interest in the Chartered Society of Massage and Medical Gymnastics, of which he became a member of council in 1925, and for the last few years he lectured to its members. In 1923 he gave a special course of lectures on the treatment of heart disease to the Teachers' Association of the Chartered Society. In 1924 he contributed to the Modern Technique in Treatment series in THE LANCET an article on the Treatment of Functional Disorders of the Heart, which was widely appreciated.

At Guy's Hospital Hunt continued, as far as his health would permit him, the work he had begun at Cambridge. He was honorary secretary of the Clinical Uses of Oxygen Committee of the Medical Research Council. At the time of his death he had begun what would have developed into a very successful private practice, dealing specially with diseases of the chest, and, in particular, heart disease, and he published a number of clinical studies on this subject from time to time.

Dr. E. P. Poulton, to whom we owe much of this biographical sketch, adds: "No account of Hunt's life would be complete without an indication of his love of music which was associated with a considerable musical ability. He came from a musical family, and was a skilled viola player; his playing was much appreciated at Rugby, Oxford, and Guy's. He was greatly in demand at the hospital Christmas festivities in his younger days, while in later life he was a regular player in quartets. His music was the dominating interest of his life outside his work. He also sang tenor, and the present writer can testify to his power of singing difficult music at sight, both when he was a schoolboy in the choir at Rugby and later in the Oxford Bach choir. He well remembers Hunt's comical dismay at a senior Oxford don, enthusiastic but not always quite in tune, when the music was difficult. His music made him a combination of artist and physician. Golf and lawn tennis were his favourite games and at both of them he was a player of more than average ability.

"Perhaps his friends will chiefly remember him for his gentle and sympathetic personality. His musical temperament, his profession as a physician, and the fact that as a boy he was brought up among sisters, without a brother of his own, may all have been factors which helped to form a very lovable nature."

In 1915 Dr. Hunt married Miss Rosie Strauss, who survives him. His colleagues at Guy's and his many professional and private friends have sustained a great loss by his early death and will extend their deep sympathy to his widow, to his two little girls, and to his sisters in their bereavement.

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## JOHN BASIL HALL, M.B., M.CH.CAMB., F.R.C.S. EDIN. & ENG., J.P.

BY the sudden death on Jan. 12th of Mr. Basil Hall at the age of 60 years, Bradford has lost something more than its principal surgeon, for Mr. Hall was a big influence in civic and professional life in the West Riding.

John Basil Hall was son of the late Dr. William Hall of Headingly, whose name is cherished in Leeds as a friend of necessitous school-children. Both his grandfathers were also in medical practice in Yorkshire. He was educated at King's School, Canterbury, and Pembroke College, Cambridge, going on to St. Thomas's Hospital, London, for his clinical studies, which he completed in 1892. After holding a series of resident appointments at the Leeds General Infirmary and some post-graduate study in Vienna, he settled in Bradford with the intention of limiting himself to surgical work; having obtained the F.R.C.S. Edin. in 1899 he soon became honorary surgeon to the Bradford Royal Infirmary, a position which he held for the statutory 20 years.

As a surgeon Mr. Hall's interests were wide. A densely populated manufacturing district afford surgical material of many kinds and his published clinical notes, all brief and to the point, are very various. His surgical colleagues at the infirmary speak of his work there as neat and dexterous, for he was by nature clever with his fingers; but they emphasise also the broad common-sense view which he took of his cases and the value to the institution of his orderly mind and retentive memory. He was himself watchful lest mere technique should cramp the development of surgical judgment, and he was apt to quote with approval the remark of Sir William Macewen that no one can become a good surgeon unless he is first a good physician. During the second and third years of the war Mr. Hall had a period of service in the Dardanelles with the Mediterranean forces, which he greatly valued in its personal and human aspect, although he returned with no illusion as to the value of military experience in dealing with sickness in civil life. As chairman of the building committee he was enthusiastic in his efforts to found a hospital in Bradford commensurate with the needs of the town and was instrumental in securing the new site on Daisy Hill on which, had it not been for the intervention of the war, the new infirmary would now be standing. At different times he presided over the Bradford and the Leeds Medico-Chirurgical Societies and he had been for long President of the Bradford Division of the British Medical Association, when, as a crown to his labours, he became President of the Association at its annual meeting in Bradford in 1924.

During his year of office the leisured mind and practical judgment which he brought with him ensured respectful hearing on deliberative occasions, and it fell to his lot to visit Canada to address the Ontario Medical Association and to represent the British Medical Association at the Atlantic City meeting of the American Medical Association. While still President, the Royal College of Surgeons of England conferred upon him the honorary Fellowship of the College.

Several years ago Mr Hall became a justice of the peace for the city of Bradford His favourite hobbies were fishing and motoring In 1898 he married Lisbeth, daughter of Mr Thomas Mackenzie, of Achnaaird, and he is survived by his widow and daughter

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## WILLIAM JOHN NAISMITH, D.S.O., M.D , F.R.C.S EDIN.

Dr. W. J. Naismith, who has died at St Andrews at the age of 78, was the son of the late Dr. J. Naismith, deputy surgeon-general at Agra. He was born in India and at the age of 10 was sent to England to escape the Mutiny. Qualifying at Edinburgh in 1869 he settled in Ayr, where he became the first surgeon of the Ayr County Hospital, and where he held many public appointments. It was as an officer of the Ayrshire Yeomanry that he saw active service in the Boer War, for which he was mentioned in despatches and received the D.S O. Dr Naismith was a skilful and self-reliant surgeon. He was closely identified with public health work for his town and with training in ambulance work in early days. He was an enthusiast for athletics and was perhaps at his happiest when presiding over the smoking concerts organised after the Ayr annual sports and the Academy sports. At the time of his retirement in 1908 he received a warm tribute from the townsmen of Ayr, who had learned to appreciate his cheerful, debonair manners and his goodness of heart. Dr. Naismith was twice married and is survived by his widow and by one son and two daughters.

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## EDWARD GRANVILLE BROWNE, M.B. CAMB., F.R.C P. LOND.

Prof. E. G. Browne, who died at Cambridge on Jan. 5th at the age of 63, was one of the most eminent of oriental scholars He was educated at Glenalmond, Eton, Cambridge, and St Bartholomew's Hospital, and although he never practised medicine, graduated as M.B at Cambridge in 1887 and later became F.R C P under a regulation which permits practitioners other than Members of the College to be elected on account of their distinction. In the year of qualification he received a Fellowship at Pembroke College, Cambridge, and soon afterwards became lecturer in Persian in the University, succeeding Charles Rieu as Sir Thomas Adams's professor of Arabic in 1902. Much travel and a phenomenal memory made him familiar with many Eastern peoples, and he was devoted to the study of oriental literature, history, and religion. Unlike many scholars, however, he was able to combine his scholarship with a real understanding of the living language and the living mentality of the races he studied. Nor was his original profession forgotten. His FitzPatrick lectures to the Royal College of Physicians were on Arabian Medicine, and he produced other work on the same subject. As a teacher he was regarded with the affection and respect which his high scholarship, his wisdom, and his disposition demanded.

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THE LATE DR. GEORGE CHAPMAN —By the death of George Chapman, at his house at Hall Green, Birmingham, the medical profession in Great Britain loses its oldest member He was a student at Queen's College, Birmingham and qualified M R C.S. in 1860 and L.S.A. in 1868 Dr Chapman had reached the age of 103 years. He retired from practice at the age of 80, and remained in good health, taking walks in the open air until the day before his death.

# THE EXCRETION OF ALCOHOL IN URINE AS A GUIDE TO ALCOHOLIC INTOXICATION.

*At a meeting of the Medico-Legal Society held on Jan. 19th, with Sir William Willcox, Vice-President, in the chair,* Dr. Godfrey Carter read a paper with the above title He said that there was no subject in which medical evidence was more unsatisfactory than that appertaining to drunkenness, the evidences of which were very hard to reduce to a form that could be stated and still more to a formula that could be given to a bench of magistrates. Yet the recognition of the condition presented few difficulties at the time. Every member of a social group could say when a member of that group ceased to be normal; the general impression was made up of a number of small changes which could be sensed and analysed. But when, for legal purposes, it became necessary to apply a series of tests, such as poise, gait, ability to toe the line, smell of the breath, memory for recent and remote events, &c., it was universally agreed that the present tests were inadequate. No two men behaved exactly alike under the influence of alcohol. In consequence, many accused cases were wrongly dismissed, after serious motor accidents, for want of evidence sufficient to convict.

### *Present Tests.*

In the speaker's opinion too much was made of the smell of the breath. It did not increase pari passu with the amount of alcohol taken, but only indicated that some alcohol had been consumed. It had no positive value, but was important as negative evidence. There were five tests to which he attached importance—viz., flushed face, sweating, dilated pupils, congested eyes, and rapid pulse. These were present in nearly all cases. The problem set to the practitioner was, as Taylor put it, to determine whether "the person's mental condition which led to the proceedings and caused him to behave in the manner he did prior to arrest was due to alcohol." If so he was drunk. The police surgeon usually heard nothing of the many cases of drunkenness *settled* daily in the courts, but recently he had come into prominence through a number of more serious cases, those of drunkenness in charge of a motor-car. There had often been serious injuries and damage to property and the accused might be a person of social standing, who realised the gravity of the charge and met it with indignant denials. The time factor was of great moment; nothing sobered a man more quickly than finding himself in prison for a serious charge. His power of regaining control under such circumstances was striking and he would often pass the usual tests quite satisfactorily or fail in *one only*, ascribing any weakness to the shock of the collision and his anger at being wrongly accused.

### *The New Test.*

When the speaker heard of Dr. Southgate's test he began to see daylight. It appeared certain that there was a concentration of alcohol in the urine which indicated very strongly that the individual would be unfit to be in charge of a car. The defence of having taken a small quantity only could not be proffered; what was found in the urine must have gone in, by the mouth. He arranged for a record of appearance and behaviour to be kept in the police books for comparison with the tests and for the samples to be bottled quickly to avoid evaporation. An initial difficulty was found in obtaining samples, as the accused men could not be persuaded to micturate to order; this was overcome by leaving them in a cell with a urinal leading to a receiver in the next cell. The great value of the test would be in *borderland cases* where the symptoms were only moderate and the defence alleged that so little alcohol had been taken that the conduct could not be ascribed to its influence.

Dr. H. W. Southgate said that the test was the outcome of four years' research in human subjects on the alcohol concentration in blood and urine. He showed a number of slides illustrating five points: (1) the general shape of the blood-alcohol concentration curve compared with that of glucose; (2) the factors affecting the height of the alcohol curve; (3) that the concentration in the blood was proportional to the toxic effect produced; (4) that the concentration of alcohol in the urine was closely related to that in the blood and that one could be deduced from the other; and (5) examples of the tests used and demonstration of how their usefulness could be applied. The samples were taken from a vein and the alcohol estimated and calculated on a percentage basis in the usual way and expressed as milligrammes of alcohol in 100 g. of blood. The concentration curve of blood-alcohol rose very rapidly—in about an hour—to its maximum and slowly came down, taking about 12 hours to return to normal, which was probably zero. The rate of disappearance was practically a straight line, and this held for wide range of concentration and all the individuals tested, and could therefore be safely used as the basis of tests. The glucose curve rose with equal rapidity, but fell within about one and a half hours to the normal of about 80 mg. to 100 g. The kidney could keep back glucose until it reached quite a high blood percentage, but had not this power for alcohol, and even half a glass of beer caused alcohol excretion. The actual maximum concentration varied with the dose. When alcohol was taken with food the concentration rose more slowly and never reached such a high maximum as when the dose was taken on an empty stomach. Some of the alcohol was held between the interstices of the food, but not enough to account for the difference, and what became of it was not known. The descending curves of concentration with and without food were parallel when the subject took exercise as well as when he rested. The tolerance of individuals varied very much according to their habits. The speaker showed a test taken by Dr. Schweisheimer in 1913, which compared the concentration figures of four subjects, one of whom was an abstainer, one a moderate drinker, and two heavy drinkers. The abstainer showed a high concentration; the chronic drinkers relatively low ones, as the alcohol never "got going" in their blood. Nevertheless, the factor of personal idiosyncrasy was very great, and it was impossible to be certain from the percentage in the urine how much alcohol had been taken.

Gréhant was the first to show that the concentration of alcohol in the blood was the measure of its toxic effect. When the body's maximum was reached the curve turned over and ran flat for a while (Gréhant's plateau). The subject was then dead drunk, and the alcohol escaped by any pore it could find. There was no difference in practice between the toxicity of a rising and a falling concentration measured on the same level. Comparison of the relative effects of whisky and stout, containing an identical amount of alcohol, showed that the concentration with whisky reached a higher maximum much more quickly than with stout, had a greater effect on the subject, and passed off more quickly. This was because the stout took much longer to drink. Toxicity was measured by the subject's ability to draw a square with its diagonals inside a circle. Miles showed that the concentration in the urine passed that of the blood almost at once and maintained a fairly constant relationship with it (1·35–1·45) whatever food is taken and whatever urine is passed. This point was important, as the evidential value of the test depended on it. One slide showed the concentration in the urine of four motorists arrested for drunkenness. One case, who had 257 mg. 15 minutes after arrest, was 40 minutes later pronounced fit by the police surgeon and released. A sample of urine taken some time after arrest would naturally not give the concentration at the time of arrest. He proposed, therefore, that this should be calculated in a standardised test by taking another sample at a measured time afterwards and plotting the concentration at arrest on the resulting curve, the time between arrest and the taking of the first sample being known. He pleaded that any standard submitted should be based on behaviour tests made with individuals of varying tolerance, each of whom had a dose that would make his concentration the same as that of the others. This test would show what the average concentration was, beyond which a person was not fit to be in charge of a car. Dr. Southgate then described the methods by which the alcohol content was estimated.

*Discussion.*

Dr. Mackenzie Wallis said that he could confirm Dr. Southgate's findings from his own work on blood-alcohol concentration in hospital cases, mostly intoxication. Cases of alcoholic poisoning, especially those being treated by gradual reduction of alcohol, often showed albuminuria, and this he thought of importance. Every case differed in regard to his tolerance for alcohol. Another factor that must be considered was the time of day and the question of fatigue; there was much less tolerance to alcohol in the morning than later in the day. Experiments should be made as to the effects of the same dose of alcohol after a heavy meal of varying dietaries.

Dr. Roche Lynch asked whether evidence obtained by such a stratagem as Dr. Carter described would admissible in a court of law; whether Dr. Southga had investigated the relation of the alcohol concent tion to other diseases such as nephritis and to abn malities in the basal metabolic rate; and whether was possible to judge from an analysis done some hou later the height to which the alcohol curve had ris at its maximum. He understood that the absorptio of alcohol after a meal containing a lot of fat wa much slower than after proteins and carbohydrate Apparently the maximum concentration was much th same in chronic drunkards and in total abstainers, ye with the same dose the former might show no evidenc of drunkenness while the latter showed marked signs

Dr. Morgan Finucane pointed out that the pamphle issued by the Board of Control ("Alcohol: Its Actio on the Human Organism") stated that very little o no alcohol was excreted in the urine. There was n public demand for boiling down drunkenness to a test, and it could not be done. It was far better to rely on the experience and common sense of the police and the observers of the conduct of the accused. He did not agree that the odour of the breath was insignificant or that sweating was a valuable sign, and regarded Dr. Carter's other four signs as trivial.

Mr. Ernest Williams said that the test would certainly be admissible as evidence.

Dr. A. S. Woodwark asked how it was possible for a man to be sober an hour after arrest, as Dr. Carter said, when the alcohol concentration curve fell steadily. He felt that no definite pronouncement could be made until many more experiments had been performed on the alcohol concentration in relation to various types of food. The same amount of sugar in the blood might produce very different effects in two different cases; alcohol might vary in the same way, and the blood-alcohol not give sufficient evidence as to the capacity of the individual for managing a vehicle.

Sir Bernard Spilsbury said that a fallacy might arise through the varying amount of urine contained in the bladder before the alcohol was taken. It would almost certainly be impossible to get a second specimen from a drunken man. There was an immense amount still to be done, especially on the effect of such things as kidney disease on excretion of alcohol, before a test could be submitted for legal use.

Dr. B. A. Levinson pointed out that the refusal to submit to a test such as this would be strong evidence against the accused. In his opinion magistrates longed for some standard; he had seen most conflicting evidence brought forward by opposing doctors. The new test would be of extraordinary value in such cases, especially to rebut a defence claiming that no alcohol had been taken.

Dr. Carter, in reply, said that the matter was only in an experimental stage, but Dr. Southgate had definitely proved that alcohol was excreted in the urine.

Dr. Southgate, in reply, said he had only had one case of renal insufficiency and this showed a lowered value. The report of the Liquor Control Board referred to the total output which was quite different from the concentration. In his opinion no man with more than 150 mg. of alcohol per 100 c.cm. of urine was fit to be in charge of a car.

## Medical News.

UNIVERSITY OF LONDON.—At the First Examination for medical degrees held in December last, 111 candidates satisfied the examiners, and the following were awarded a mark of distinction:—

*Inorganic Chemistry.*—Alan Ruscoe Clarke, Haileybury College, Marian Josephine Cunning, London (R.F.H.) School of Medicine for Women, and Philip Frankenberg, St. Bartholomew's Hospital.
*Physics.*—Eric Stuart Harverson, University College, and Moses Shorvon, King's College.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At a quarterly meeting of the Council of the College on Jan. 14th, Sir John Bland-Sutton, President, being in the chair, it was resolved that for the rest of January and during February the museum be kept open till 5 P.M. instead of being closed at 4 P.M.—A further application from Mr. F. W. Axham for restoration to the Membership of the College was considered, but the Council did not see fit to rescind the resolution of July 13th, 1911, removing Mr. Axham from being a Member of the College.—It was agreed that a gown for Licentiates in Dental Surgery of the College be instituted and that the following addition be made to Section XXVI. of the Regulations of the Council relating to Academical Costume:—

> The gown for Licentiates in Dental Surgery shall be a black stuff gown similar in shape to the Fellows' and Members' gowns, with facings of crimson cord and with a sleeve looped with crimson cord.

—The President reported that Sir Berkeley Moynihan had consented to deliver the next Hunterian oration and accordingly declared him to be appointed Hunterian orator for 1927. The President also reported that he had appointed Sir John Lynn-Thomas as Bradshaw lecturer, and Prof. G. Elliot Smith as Thomas Vicary lecturer for the ensuing year.—A letter was read from Mr. Raymond Johnson resigning his membership of the Court of Examiners. The President stated that the vacancy on the Court of Examiners thus occasioned would be filled up at the ordinary Council on March 11th.

The diploma of F.R.C.S. was conferred upon Laurence Frederick O'Shaughnessy, who had previously passed the necessary examinations and had now complied with the by-laws. The diploma of M.R.C.S. was conferred upon S. A. Antoun, Birmingham; Hilda M. King, Royal Free and St. Mary's; and Nellie L. Pyman, Charing Cross Hospital.

Diplomas in Public Health were conferred (jointly with the Royal College of Physicians of London) on the following 16 candidates:—

P. L. T. Bennett, Margaret E. Bjorkegren, and M. A. B. Brito-Mutunayagam, Univ. Coll.; A. B. Davies, Guy's and King's Coll.; Sylvia V. Elman, Royal Inst. Public Health; W. D. Forgrave, Belfast and King's Coll.; Janet M. Gillison, Edinburgh and King's Coll.; A. W. Grace, Univ. Coll.; F. V. Jacques, Bristol and Univ. Coll.; C. R. Lane, Oxford and King's Coll.; J. H. Porter, Cambridge and Royal Inst. Public Health; W. O. Pou, Univ. Coll.; A. S. Sachdev, Punjab and Royal Inst. Public Health; J. Singh, Punjab and Univ. Coll.; B. K. Vaidya, Bombay and Univ. Coll., and H. C. M. Williams, St. Bart.'s.

Diplomas in Laryngology and Otology were conferred upon:—

P. V. Cherian, J. M. Damany, W. J. McNally, and N. C. Ramchandani.

Diplomas in Tropical Medicine and Hygiene were conferred upon:—

Winifred D. Cargill, O. F. Conoley, R. A. Mansell, and C. H. H. Robertson.

Diplomas in Psychological Medicine were conferred upon:—

N. A. Albiston, H. E. August, A. A. Bell, Eleanor M. Creak, J. H. Cuthbert, H. S. Forbes, T. R. Forsythe, R. F. Hewlitt, R. M. Macfarlane, J. McGarvey, E. D. T. Roberts, and F. C. M. Taylor.

Dr. T. A. McCullagh, of Bishop Auckland, has been appointed deputy lieutenant for the county of Durham.

STUDY OF VENEREAL DISEASES.—A meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos-street, Cavendish-square, London, W., on Friday, Jan. 29th, at 8.30 P.M. Papers will be read by Dr. Dorothy Logan and Dr. Violet Russell on the Diagnosis and Treatment of Urethritis and Cervicitis in the Female, and a discussion will follow.

HUNTERIAN SOCIETY.—At a meeting to be held on Monday, Jan. 25th, at 9 P.M., in the Hastings Hall, British Medical Association, Tavistock-square, London, W.C., Sir James Berry will deliver the Hunterian Lecture, on Some Clinical Aspects of Simple Goitre with remarks on its Causation. After the lecture, which will be illustrated by the epidiascope, there will be a discussion in which Dr. Strickland Goodall, Mr. T. P. Dunhill, and Dr. Scott Williamson will take part.

NEW UNION HOSPITAL FOR BARTON.—The Barton-upon-Irwell guardians are to build at once at Davyhulme, near Manchester, a hospital which will be one of the best equipped in the country, and is to be completed in about 18 months. The new buildings will be erected on a site of 33 acres and will cost about £300,000. There will be a maximum of 500 beds available. The medical and clinical appliances include a laboratory for pathological work and an electrical and X ray department, and amongst the amenities will be a single-storey block for healthy children.

GERMAN CONGRESS ON PSYCHOTHERAPY.—In connexion with the Wiesbaden Congress of Internal Medicine, the first general medical congress of psychotherapy will take place at Baden Baden from April 17th to 19th next. The subject will be dealt with in a comprehensive manner under twelve headings by psychotherapists from Berlin, Vienna, Budapest, Munich, Heidelberg, Bonn, Giessen, Frankfort, Münster, Tübingen, Basle, and Zürich. Scientific contributions for this congress should be addressed to Dr. med. et phil. Eliasberg, Grosshesselohe, Munich, and applications for tickets to Dr. med. Benno Hahn, Maria-Victoria Strasse, 6, Baden-Baden.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee 41 cases were considered and £451 18s. voted to 32 applicants. The following were some of the cases relieved:—

M.R.C.S. 1915, M.B. 1922, aged 35, married, three children, aged 9, 6, and 1 year. With army gratuity and savings bought a practice which turned out badly and could not keep up instalments, so he went to moneylenders and eventually became bankrupt. Afterwards, with some £60 which he had left, and a contribution of £50 from friends, started a practice in the Midlands with good prospects. The Professional Classes Aid Council investigated the case and suggested coöperation, with which the Committee agreed and voted £24 to be disbursed by them.

Widow, aged 60, of M.D. Edin. who practised in Wales and died in 1906. Two children: daughter, aged 20, a dispenser earning £3 a week but not living at home, and son, aged 23, with defective hearing, who is unable to get employment. Lives with applicant. Only income £20 per annum, and £10 10s received from letting rooms. Has applied for the Epsom Pension. No rent, but rates amount to £9 per annum. Voted £12 in 12 monthly instalments.

Widow, aged 59, of M.R.C.S. 1891 who practised in England and then went to New Zealand and died in 1905. Applicant and her daughter lived on the £3000 left by the doctor, but £1700 of this was lost by bad investment. Daughter not strong but is nursing in a sanatorium, receiving £2 10s. a month. Applicant has had to give up nursing at present owing to bad health. The Committee voted £10.

M.R.C.S. Eng. (St. George's), aged 71, unmarried. Unable to obtain locums owing to age. Suffers from rheumatism. £100 War Loan held by bank against overdraft. Has been in receipt of the Old Age Pension for the past twelve months. Board and lodging 25s. a week. Voted £50 in 12 monthly instalments.

M.R.C.S. Eng. 1897 (Middlesex), aged 54, who up to 1923 had a practice in the Midlands and has since taken locums. Unable to get work and since Christmas 1923 has lived on savings, and been helped through the charity of friends. Had to apply recently to the guardians. Rent of room 12s. 6d. a week. Voted £9.

Widow, aged 68, of M.R.C.S. Eng. (University College) who practised in the provinces and died in 1890. Applicant has maintained herself ever since, and it is only owing to an accident last August that she has now applied for assistance. She was in bed for 9 weeks. Only income, Epsom Pension £40, and 8s. a week from her married daughter; her rent amounts to 10s. a week. Voted £18 in 12 monthly instalments.

Daughter, aged 53, of L.R.C.P. 1864 (St. Bart.'s) who practised in the Midlands and died in 1881. Applicant is unable to earn her own living as she has to look after her mother aged 85 who is an annuitant of the Fund. Mother has the Old Age Pension and help from our Guild and our annuity of £30 per annum. The rent is paid by applicant's sister. Voted £18 in 12 monthly instalments.

Subscriptions may be sent to the hon. treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

A Hospital Economy.—During the past year the Royal Free Hospital, London, has saved over £500 by washing and resterilising used gauze and bandages.

Norfolk and Norwich Hospital.—The board of management report the "stupendous" annual total of 1275 accident cases, of which 20 a week are motoring casualties. A new children's ward has just been opened.

At the quarterly meeting of the Directors of the Naval Medical Compassionate Fund, held on Jan 19th, at which Surgeon Vice-Admiral Sir Joseph Chambers, Medical Director-General of the Navy, occupied the chair, a sum of £105 was distributed among applicants.

Richmond Hospital Association.—Last week an association was started at Richmond (Surrey) for the benefit of its Royal Hospital, with the approval of the President of the appeal, the Duke of York. Richmond Royal Hospital needs £11,000 a year for its maintenance, but out of a population of 280,000 in the districts it serves only 600 people contribute. The association aims at obtaining members at £1, associates at 10*s.*, and junior members at 5*s.* a year.

Improvements at Cheltenham General Hospital.—It is proposed to expend £14,000 upon enlargement and improvement. In 1922 £6000 contributed by the British Red Cross Society was devoted to the improvement of the out-patients' department and the provision of a new orthopædic ward. It is now reported that much of the existing X ray installation is obsolete, and that the electrotherapeutic apparatus falls below the present standard. The surgical side for out-patients is very unsatisfactory, and there is no dental room.

Carter Bequest Hospital, Middlesbrough.—Last week Sir Hugh Bell opened a new hospital provided from a bequest of £40,000 left some 20 years ago by the late Alderman Thomas Carter, a former Mayor of Middlesbrough. Its erection was postponed by the war, and in the meantime the fund accumulated to £100,000. The building, which stands in four acres of land, contains 52 beds, and there will be no resident medical officer. Any medical man may recommend a patient and continue in attendance upon him.

Yorkshire Cancer Campaign.—Viscount Lascelles presided at a meeting held at Leeds on Jan. 18th to inaugurate the Yorkshire Cancer Campaign to establish and equip a cancer research centre for Yorkshire. It was announced at the end of the meeting that the first subscription list had reached £50,000; the sum of £75,000 is required as a minimum. Sir Algernon Firth promised to give £20,000 in addition to the £5000 he has already offered to the University of Leeds towards the erection of a pathological institute in which special facilities will be offered to cancer research students.

Courses at Maudsley Hospital.—Two series of clinical demonstrations are at present in progress at the Maudsley Hospital, Denmark Hill, London, S.E. On Wednesdays, at 2.30 P.M., Dr. Edward Mapother demonstrates Functional Mental Syndromes, whilst on Mondays at the same hour Dr. Mary Barkas deals with Mental Disorders associated with Organic Disease and Mental Symptoms and their Genesis. A discussion of cases in the hospital is held in the wards every Tuesday at 11.30 A.M., and there is a monthly meeting on the last Friday of each month at 4.30 P.M. at which a group of patients from one of the L.C.C. mental hospitals is shown. All these clinical facilities are open to medical practitioners and students without fee.

A British Trust for Spahlinger Treatment.—It is announced that a Spahlinger fund is to be created by public subscription to finance a British campaign on behalf of the Spahlinger treatment of tuberculosis, and to enable a board of British trustees to take over the Spahlinger estates and laboratory at Geneva, and to produce the necessary sera so that they may become available for use in Britain. The new appeal is to be sent out from Messrs. Brunner Mond's, and is to be made in the first place to employers of labour. In the first instance £40,000 will be asked for, but later a general appeal to the public will be made to raise the fund to £100,000 in order to secure a greatly increased output of the Spahlinger products and to establish an institute in England which would make them generally available to the medical profession. The first trustees of the fund will be Sir Arthur Steel-Maitland (the Minister of Labour), Mr. Tom Shaw, Sir Alfred Mond, and Sir Bruce Bruce-Porter. By private appeals several thousand pounds have already been raised. The first object of the fund is, it is stated, to set Mr. Spahlinger and his colleagues free to carry on their work without financial worries.

Charing Cross Hospital Institute of Pathology. It has been decided to offer to the general practitioner the scientific facilities provided by the Charing Cross Hospital Institute of Pathology at a scale of fees which will bring pathological, bacteriological, and chemical examinations within reach of his poorer patients, and greatly extend his opportunities for the investigation of his more obscure cases. Results will be posted within 24 hours when possible, or in the shortest time the nature of the investigation will permit. Arrangements may be made for patients to be visited in their own homes or to attend the laboratories, the former necessarily involving an increase in the cost. Tubes, pipettes, and other apparatus may be obtained upon request, accompanied by such special instructions as the director of the institute may consider desirable. All reports will be signed by Dr. A. Piney, the director of the Institute of Pathology. The following examples of the scale of fees are taken from the schedule: Quantitative estimation of sugar in blood, 5*s.*; Wassermann reaction, 5*s.*; differential blood count, 10*s.*; histological section, stained and mounted with report, 6*s.* 6*d.*; examination of fractional test-meal, 10*s.* 6*d.*; verification of the presence of tubercle bacilli in cerebro-spinal fluid, urine or sputum, by animal inoculation, 17*s.* 6*d.* All communications and specimens should be addressed to the Secretary, Charing Cross Hospital Institute of Pathology, 62, Chandos-street, Strand, London, W.C. 2.

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W.
Thursday, Jan. 28th.—4.30 P.M.—*The following papers will be read:*—A. C. Seward: The Cretaceous Plant-Bearing Rocks of Western Greenland. W. L. Balls and H. A. Hancock: Measurements of the Reversing Spiral in Cotton Hairs. R. H. Burne: A Contribution to the Anatomy of the Ductless Glands and Lymphatic System of the Angler Fish (*Lophius Piscatorius*.) (Communicated by Sir Arthur Keith.) I. Gordon: The Development of the Calcareous Test of *Echinus miliaris*. (Communicated by Prof. E. W. MacBride.) *Papers to be read in title only:* F. G. Gregory and L. Batten: A Critical Statistical Study of Experimental Data on the Effect of Minute Electric Currents on the Growth Rate of the Coleoptile of Barley. (Communicated by Prof. V. H. Blackman.) H. M. Fox: Chlorocruorin: a Pigment Allied to Hæmoglobin. (Communicated by Prof. J. Stanley Gardiner.)

**ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.**

**Monday, Jan. 25th.**

GENERAL MEETING OF FELLOWS: at 4.30 P.M.
*Discussion* on
Hyperpiesis.
*Opener:*
The Right Hon. Lord Dawson of Penn, to be followed by Prof. F. R. Fraser and others.
ODONTOLOGY: at 8 P.M.
*Casual Communication:*
Mr. Walter Harrison and Mr. E. W. Lowe: Notes of a Complicated Removal of a Third Lower Molar—Fatal Sequel.
*Paper:*
Mr. A. W. Wellings: Some Points in the Anatomy of the Capillaries of the Tooth Pulp.

**Tuesday, Jan. 26th.**

MEDICINE
COMPARATIVE MEDICINE } at 8.30 P.M.
*Discussion:*
Hodgkin's Disease in Man and Animals.
*Openers:*
Sir Humphry Rolleston (Medicine)
Prof. Wooldridge (Comparative Medicine).
*Other Speakers:*
Dr. Morley Fletcher, Mr. W. Horner Andrews, Mr. L. Pugh.

**Wednesday, Jan. 27th.**

COMPARATIVE MEDICINE: at 5 P.M.
*Papers:*
Prof. R. H. A. Plimmer: The Relation of Quantity of Vitamin B to Quantity of Food.
Prof. J. C. Drummond: New Facts concerning the Fat-Soluble Vitamins.

**Thursday, Jan. 28th.**

UROLOGY: at 8.30 P.M.
*Discussion* on
Pyelography.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W
Monday, Jan. 25th.—8.30 P.M., Discussion on Manipulative Treatment in Medicine and Surgery, to be introduced by Mr. R. C. Elmslie and Mr. W. R. Bristow.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

MONDAY, Jan. 25th.—5 P.M., Sir Arthur Keith: The Taungs Anthropoid: its Zoological and Geological Position.

WEDNESDAY.—5 P.M., Fossil Anthropoids of Europe and of Asia.

FRIDAY.—5 P.M., The Kivu Gorilla and its Bearing on the Problems of Human Evolution.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Jan. 25th, to SATURDAY, Jan. 30th.—Lecture Hall of the Medical Society of London, 11, Chandos-street, W. Thurs., 5 P.M., Dr. H. C. Cameron will lecture on Catarrhs and the Catarrhal Child. This lecture is free to members of the medical profession.—BETHLEM ROYAL HOSPITAL, Lambeth, S.E. Lecture-demonstrations at 11 A.M. Tues., Dr Porter Phillips: The Psychoses. Sat., Dr. Porter Phillips: Medico-Legal Aspect of Insanity.—NORTH-EASTERN FEVER HOSPITAL, St. Ann's-road, Tottenham Wed., 2.30 P.M., Sat. 11 A.M., Dr. Frederic Thomson Demonstration in the Diagnosis and Treatment of the Acute Infectious Diseases.—QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, E. Special course, daily lectures, and demonstrations in all departments.—WEST END HOSPITAL FOR NERVOUS DISEASES, 73, Welbeck-street. Special course in the Diagnosis and Treatment of Common Diseases of the Nervous System. Lecture-demonstrations at 5 P.M. throughout the week.—WESTMINSTER HOSPITAL. Wed., 2 P.M., Mr. E. Rock Carling: Special clinical surgical demonstration. All information as to fees, &c., from the Secretary of the Fellowship.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Jan. 25th.—10 A.M., Surgical Out-patients: Mr. W. E. Tanner. *10.30 A.M., Gynæcological Operations:* Mr. A. E. Giles; Throat, Nose and Ear Operations: Mr. W. Ibbotson. 2 P.M., Medical, Surgical, and Gynæcological Clinics, Operations. 6.30 P.M., Venereal Department.

TUESDAY.—2 P.M., Medical, Surgical, Throat, Nose and Ear Clinics, Operations. 4.30 P.M., Mr. E. Miles Atkinson: Acute Infections of the External Auditory Meatus.

WEDNESDAY.—10.30 A.M., Surgical Operations: Mr. E. Gillespie. 2 P.M., Medical, Eye, and Skin Clinics, Operations. 5.30 P.M., Venereal Department.

THURSDAY.—10.30 A.M., Dental Out-patients: Mr. E. S. Pierrepont. 2 P.M., Medical, Surgical, and Throat, Nose and Ear Clinics, Operations. 5 P.M., Operations.

FRIDAY.—10.30 A.M., Eye Operations: Mr. N. Fleming. 2 P.M., Surgical, Medical, and Children Clinics, Operations. 3 P.M., Gynæcological Clinic. 6.30 P.M., Venereal Department.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester-square, W.C.

TUESDAY, Jan. 26th.—5 P.M., Dr. H. W. Barber: The Erythrodermias.

THURSDAY.—5 P.M., Dr J. M. H. MacLeod: Pemphigus.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.

WEDNESDAY, Jan. 27th.—3.30 P.M., E. W. Fish: The Mouth as a Focus of Infection.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Jan. 29th.—3 P.M., Mr. Gill-Carey: Diagnosis of Sinus Disease.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.

WEDNESDAY, Jan. 27th.—Dr. Harrison: Reducing Substances in the Urine.

THURSDAY.—4 P.M., Mr. T. Higgins: Hip Cases: A Diagnostic Review.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone-road, N.W.

THURSDAY, Jan. 28th.—5 P.M., Mr. T. B. Davies: Ante-Partum Hæmorrhage.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE.

FRIDAY, Jan. 29th.—4.30 P.M. (at Whitworth-street West Branch), Mr. J. Morley. Acute Appendicitis in Infants

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINIC.

FRIDAY, Jan. 29th.—3.30 P.M. (at the Royal Infirmary), Dr. Mouat: The Technique of Local Anæsthesia in Minor Operations.

# Appointments.

DAVIES, L. MEREDITH, M.D., B.Ch. Oxf., D.P.H., has been appointed Medical Officer of Health for Northamptonshire.

FALCONER, KINLOCH, M.D., Ch.B. Glasg., D.P.H., Medical Officer of Health, Durham Rural District.

HODGSON, J. F., M.D., Ch.B. Manch., D.P.H., re-elected Honorary Surgeon to the Royal Halifax Infirmary.

MILNE, V. E., M.B., Ch.B. Aberd., D.P.H., Medical Officer of Health, Walsall Rural District Council.

POWER, R. W., M.B., B.Ch. Dub., D.P.H., Hon. Orthopædic Surgeon to the Hereford General Hospital.

Willesden General Hospital, Harlesden: WILLIAMS, T. PEARSE, M.D., B.S. Lond., M.R.C.P. Lond., Physician with charge of Out-patients; PHILLIPS, L., M.S., M.B. Lond., F.R.C.S. Eng., Gynæcologist with charge of Out-patients.

# Vacancies.

*For further information refer to the advertisement columns.*

*Barnsley County Borough.*—Asst. M.O.H., &c. £600.
*Bradford Children's Hospital.*—H.S. £100.
*Brighton, Lady Chichester Hospital for Early Nervous Breakdown.*—H.P. £100.
*Bristol Eye Hospital.*—H.S. £150.
*Central London Throat, Nose and Ear Hospital, Gray's Inn-road, W.C.*—Res. H.S. At rate of £75.
*Dundee Royal Infirmary.*—Hon. Asst. Ophth. S.
*Edinburgh, Royal Infirmary.*—Two Asst. M.O.'s. £460 and £350 respectively
*Exeter, Royal Devon and Exeter Hospital.*—Sen. H.S. £200.
*Guy's Hospital.*—Phys. for Psychological Med.
*Hertford County Hospital.*—H.S. At rate of £150.
*Hospital for Sick Children, Great Ormond street, W.C.*—Res. Med. Supt. £300.
*Hull Royal Infirmary.*—Asst. H.P. At rate of £130.
*Leeds Public Dispensary.*—Sen. Res. M.O. £200.
*London Lock Hospital, 91, Dean-street, W.*—H.S. At rate of £200.
*Manchester, Ancoats Hospital.*—H.S. At rate of £100. Also Anæsthetist. 10s. 6d. each attendance.
*Manchester Committee on Cancer.*—Special Investigation Officer. £600.
*Northamptonshire County Council.*—Tuberculosis Officer. £750.
*North Middlesex Hospital, Edmonton, N.*—Anæsthetist. 2½ gs. per session.
*Nottingham General Dispensary, Broad-street.*—Res. Surg. £250.
*Nottingham General Hospital.*—H.S. for Ear, Nose and Throat Dept. At rate of £150.
*Queen's Hospital for Children, Hackney-road, Bethnal Green, E.*—Cas. O. At rate of £100.
*Rochester, St. Bartholomew's Hospital.*—H.P. At rate of £200.
*Royal Northern Hospital, Holloway, N.*—Asst. Surg. O. £150.
*Southampton, County Borough Isolation Hospital.*—Res. M.O. £300.
*Sudan Medical Service.*—Four M.O.'s. £E.720.
*Ventnor, Isle of Wight, Royal National Hospital for Consumption and Dis. of Chest.*—Jun. Res. M.O. At rate of £250.
*Warrington, Lancashire County Mental Hospital, Winwick.*—Deputy Med. Supt.
*West London Hospital, Hammersmith, W.*—Asst. Path. £250.
*Wilts County Council, Venereal Diseases Clinic, Swindon.*—Part-time M.O.'s. £1 11s. 6d. per session.
*Wolverhampton and Staffordshire Hospital.*—H.S. At rate of £150.
*Worcester General Infirmary.*—Jun. Res. M.O. £120.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacant appointments for Certifying Factory Surgeons at Newport, Yorks, E. Riding; Insch, Aberdeenshire; and at Cumbernauld, Dumbartonshire.

A vacancy for a Medical Referee under the Workmen's Compensation Acts (Northern Ireland), 1906 to 1923, is announced. Application should be made to the Secretary, Ministry of Labour, 7, Upper Queen-street, Belfast, not later than Feb. 6th.

# Births, Marriages, and Deaths.

## BIRTHS.

CROOK.—On Jan. 18th, 1926, at 15, South Eaton-place, London, S.W., to Elizabeth, wife of Eric A. Crook, F.R.C.S.—a son.

PORTEOUS.—On Jan. 13th, at Glencoe, Lower Common South, S.W., the wife of A. B. Porteous, of a son.

POTTINGER.—On Dec. 13th, 1925, at Poona, India, the wife of Captain D. Pottinger, R.A.M.C., of a son.

SHEARWOOD.—On Jan. 17th, at Normanton-road, Derby, the wife of Dr. A. L. Shearwood, of a daughter.

## MARRIAGES.

HOLLOWAY—DIXON.—On Jan. 9th, at St. Andrew's Parish Church, Shoebury, Norman Maberly Holloway, L.D.S. R.C.S., to Barbara Mary, only daughter of Mr. and Mrs. Timothy Dixon, of Thorpe Bay, Essex.

## DEATHS.

BLOXAM.—On Jan. 12th, John Astley Bloxam, F.R.C.S., J.P., of The Old Malt House, Bourne End, Bucks, aged 82 years.

HALL.—On Jan. 12th, suddenly, at Park View, North Park-road, Bradford, John Basil Hall, J.P., M.Ch., F.R.C.S.

HODGSON.—On Jan. 12th, at the Samaritan Hospital for Women, Dorothy Margaret Hodgson, M.R.C.S., L.R.C.P., the wife of Dr. R. G. K. Hodgson, of Andover, Hants, aged 29.

MACLEAN.—On Jan. 15th, at Balham High road, S.W., James Newlands Maclean, M.B., C.M. Glasg., aged 63.

WILSON.—On Jan. 13th, at a nursing home in Liverpool, Frederick Perera Wilson, M.D., of Rodney-street, Liverpool, and Windbourne, Freshfield, Liverpool, aged 40 years.

WOOD.—On Jan. 14th, at Waverley-road, Enfield, Edward Wood, L.S.A., M.R.C.S., L.R.C.P.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## SMALL-POX AND VARIOLATION IN A VILLAGE IN PALESTINE

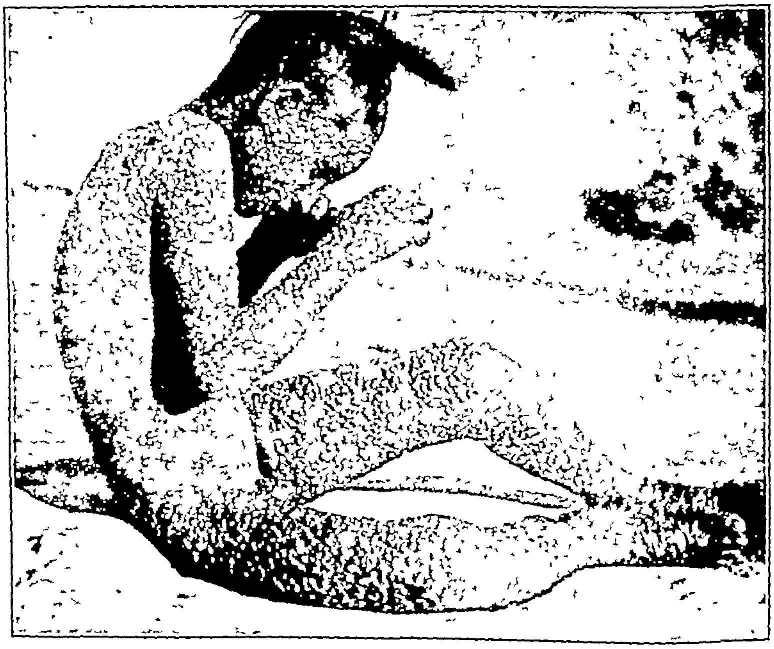
IN DECEMBER, 1921.

[ABRIDGED.]

BY JOHN MACQUEEN, M.B., C.M. EDIN.,
DEPARTMENT OF HEALTH, JERUSALEM.

VARIOLATION is the inoculation of individuals with variolous matter from the vesicles of a person suffering from small-pox, with a view to protecting them from the disease. In India there was a special worship defined in the Atharvaveda, and special prayers were to be said by the Brahmins when performing the operation of inoculating the virus. It was almost certainly known when the Charaka Samhita and the Susruta Samhita were written. In Africa Ruffer and Fergusson found an eruption on the skin of a mummy belonging to the period 1200 to 1100 B.C., which was suggestive of small-pox. It was apparently introduced into America by the Spaniards and by slaves brought from Africa.

FIG. 1.



Showing distribution of rash in a bad case.

For the study of the spread of small-pox recently in countries surrounding or connected by trade routes with Palestine, the returns from Paris, Constantinople, Egypt, and the League of Nations were available. What is of most interest is the connexion of the disease with the Moslem pilgrimage to Mecca in 1921. The Palestine pilgrims were detained at the quarantine station at Tor on the Red Sea, and arrived back in the country about Sept. 9th. The medical officer who had accompanied them reported that there had been ambulant cases in Mecca. In Dawaimeh village there had been no cases since the war, but the villagers stated that there had been three epidemics during the last 50 years. Certainly numbers of them were pock-marked.

The Turks performed vaccination spasmodically. They employed vaccinators for this purpose, and Palestinian doctors think that about 10 per cent. of the population of the country were vaccinated in this way. In Dawaimeh a much larger proportion than this had been variolated in their youth. Indeed, the majority still show the scar of this operation on the web between the forefinger and thumb.

### *History of Inoculation.*

It is worth while recalling the story of the introduction of variolation into Western countries. Lady Mary Wortley Montagu saw and learned the method in Constantinople in 1717, and had the operation performed on her son. She described it in a letter to a friend in England, where it soon became popular and eventually spread from there to Europe and America. The procedure in Turkey was to remove the contents of a vesicle (not a pustule), preferably the vesicle of an inoculated case, and introduce it by means of an abrasion, incision, or puncture. Rosenau describes the Chinese method as follows: "They inoculate usually by plugging the nostrils with cotton previously saturated with a mixture of water and pustular crustaceous matter taken from the eruption of a small-pox patient; less commonly by blowing the crushed fresh crusts into the nostrils through a bamboo pipe." Inoculation as performed in Britain is described by the late Dr. C. B. Ker: "Clear lymph from the vesicle preferably of an inoculated case was inserted by means of a lancet into the skin of the upper arm. Four days later papules appeared at the site of inoculation and formed pustules on the seventh day. There was fever and subsidiary pustules round the site of inoculation, and on the eleventh day the temperature fell and a generalised eruption appeared on the other parts of the body and ran a normal if somewhat rapid course." The discussion on the relationship of cow-pox to variola is age old, the established view being that cow-pox is small-pox modified by transmission through the cow. Goat-pox is comparatively common in Palestine.

### *The Epidemic in Dawaimeh.*

Dawaimeh lies among the western foothills of the Judean range, a four hours' ride in a direction west by south from Hebron. Its people are strong and healthy and well-suited for the pursuit on which a large number of them depend for a livelihood, for they are thieves of considerable distinction. It is told of them that during the war a troop of Turkish cavalry visited their village when touring the country to commandeer horses for the army. Their commander told the mukhtar of Dawaimeh that the village must provide ten by the following morning, otherwise the place would be burnt down. Next morning they were duly handed over to the Turks. It was not until they had the whole heat of a day's march between themselves and the mukhtar and arch-chief of Dawaimeh that they realised that their total number of horses had not been increased by a single animal. Hussein had caused his minions to steal ten horses from them during the night, and had presented them with a similar number in the morning! This story somewhat consoled me, because I had visited Dawaimeh on Dec. 19th, stayed the night with Hussein, seen the original case of small-pox, satisfied myself with regard to the measures being taken and that there were no further cases there, when all the time there were hidden in the village and surrounding caves over 300 children who had been variolated. Most of these must have had wounds at the site of inoculation at that time, a considerable number had already developed an eruption, many were very ill, and a few had almost certainly died. The original case, a negress servant of Hussein's, was first seen by a doctor on Dec. 13th, 1921, and was already in the pustular stage. She was isolated in a tent some distance from the village, disinfection was carried out, and vaccination begun. No more cases were discovered, and for some days all appeared to be going well. But the mukhtar had enemies who made it known that a few days before the case of the negress had been reported the village "doctor" Shaheen had, with the sanction and encouragement of the mukhtar, successfully inoculated from the original case no less than 300 children. Too successfully indeed had he done his work. One-half of the 300 children were said to have developed an eruption, many were seriously ill, some had died, and cases of true small-pox contracted from those inoculated were beginning to make their appearance. Energetic steps had to be taken. A hospital was established in the mukhtar's house and staffed by a doctor, staff nurse, two probationer nurses, tamurgi, cook, and male servant. The work of vaccination was pushed on, and in a short time most of the inhabitants had been vaccinated.

Some difficulty was experienced at first. A systematic house-to-house search was instituted. On making an inspection of this sort it is not sufficient merely to enter a house and take the names of those present. The caves, corn bins, tibbin heaps, nooks behind piles of sticks, roofs, gardens, and every hole and cranny had to be searched, and many amusing finds were made.

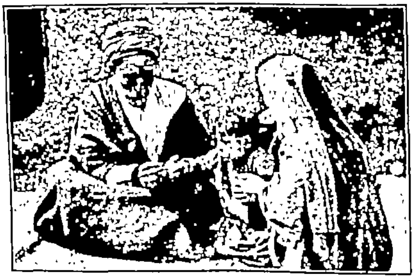
The first lymph which was used proved quite unsatisfactory, only 172 out of 2751 vaccinations showing positive results, and several children developed true small-pox. Fig. 1, taken by Dr. Ayoub from one of those, shows excellently the distribution of the rash. Fresh lymph was obtained from the Government of Egypt, and the difference was quickly apparent. The natives themselves were struck by its greater potency and came forward readily enough even to be done a third time. "It would take on a stone" they said. Vaccination with the "Cairo" lymph marked the turning point in the campaign. No person who was protected thereby developed small-pox. Later a vaccination campaign throughout the whole country was undertaken, and at present it is safe to say that no serious outbreak of small-pox is likely to occur during the next five years.

*The Inoculated Cases.*

Shaheen is a distinguished-looking gentleman of over 50 years of age. Fig. 2, which shows him at work, was taken after his discharge from Hebron prison, where he spent a month as a result of his misguided efforts to limit the spread of the disease. He was the village medicine-man, as had been his father and grandfather before him. In the neighbouring villages and even amongst the Bedouin of the plains to the south he was held to have skill and experience in his profession. His reputation was by no means lessened but rather considerably enhanced by his performance at Dawaimeh and subsequent imprisonment.

Shaheen's method was as follows: As "lancet" he employed the thorns of a shrub (Fig. 3) common in the district. He peeled the thorns with his thumb nail and with this fairly sharp-pointed, useful little weapon he removed the cuticle of a vesicle or pustule of the original case and spread some of the contents on the skin on the back of the web between the forefinger and thumb of the right hand. He then made three little punctures with the thorn point through the variolous matter and skin on which it was spread. After this the thorn was drawn across under the nostrils. This was done, so Shaheen said, in order that the emanation from the variolous matter might be inhaled with the breath and so doubly inoculate the victim. Shaheen told us that when he did not draw blood his inoculation took better. He also told us that he used to conserve his vaccine so that he could inoculate even when he had not an actual case to work from. This he did by rubbing a piece of cloth over the pocks, thus breaking them down and soaking the cloth in variolous matter. The cloth was kept in a bottle full of water which dissolved out the variolous matter and this could be used later as vaccine, or it was allowed to dry and preserved thus. It lasted, he said, for years. His charge for vaccination was an egg or two. Most of the children inoculated were between 1 and 3 years of age, but one was 6 months old and another 8 years. Shaheen was averse to doing children under a year. The wounds produced at the site of inoculation were either punched-out sores big enough to put the top of the little finger into for half an inch, or like ordinary septic sores with scabs on them when I saw them.

Fig. 2.

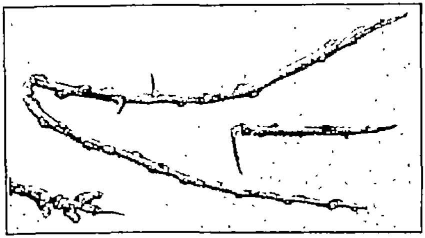


Shaheen at work.

*Variola Inoculata.*

It was difficult to obtain a reliable account of the course of symptoms following inoculation, and we were too late on the scene to observe these ourselves. Roughly it took from four to eight days between inoculation and the appearance of the eruption. Towards the end of that period the patients suffered from malaise, indefinite pains, and loss of appetite. Headache and vomiting, generally present in true small-pox, were not complained of markedly, nor did they say that they had rigors, but stated that fever was present when the eruption appeared. The latter went through the stages of papule, vesicle, pustule, and crust just as in small-pox. Some of the patients were severely ill and out of 116 who had the eruption ten died. The legs, hands, and arms were chiefly affected, as in true small-pox. Most showed from 1 to 35 pocks, but 23 per cent. of cases showed over 200 pocks. This indicates the potency of the strain of virus used by Shaheen, and this is further borne out by the fact that death occurred in 8·6 per cent. of the cases showing eruption and 3·3 per cent. of the number inoculated. The case-mortality in the last epidemic of small-pox in England was about 3 per cent., but in the unprotected it is, of course, much higher than this. The pitting produced by the pocks was less deep than in that of true small-pox. The death-rate for cases inoculated, 3·3 per cent., could not have been so high when the practice was common in England.

Fig. 3.



Thorn of the kind used by Shaheen for inoculating.

It occurred to me that it would be interesting to vaccinate some of the children whom Shaheen had inoculated. Accordingly 27 of the cases which had been inoculated by Shaheen and developed an eruption a year previously were vaccinated. Twelve out of the 27 children vaccinated gave a positive result (roughly 50 per cent.). There is no doubt that if one vaccinated a year later 27 children who had had true variola nothing like that proportion would have been successful.

In general variola inoculata is a mild disease. The death-rate in cases inoculated must have been, I should think, considerably less than 1 per cent. or it would not have gained such popularity after its introduction into England and America. The Dawaimeh cases were much more severe—it is difficult to say why. The climate is mild. Sepsis was not sufficient to account for the high death-rate, and the people are strong and healthy. Shaheen evidently struck a particularly virulent strain of virus.

*Why is Variola Inoculata Milder than Variola Vera?*

That variola inoculata is generally a mild disease, whereas variola vera is a severe one, is possibly due to the fact that the virus, when introduced under the skin, finds itself in an unfavourable medium for propagation. The Chinese method of inoculating small-pox by blowing the crusts into the nose through bamboo pipes also produces a much milder disease than variola vera. Inhalation would not therefore appear to be the normal route of the infection. Neither probably is ingestion, because in the Chinese method it is bound to have taken place in almost every case.[1] Why is it that small-pox when it spreads naturally by contagion or fomites is so much more severe than when inoculated subcutaneously or by blowing into the nose. It is easy to make suggestions. The possibility of an intermediate host in which the virus undergoes development presents itself. But diseases, in the spread of which an intermediate host plays an essential part, do not spread by direct contact. The virus may be spore-forming. But if this were the case Shaheen's dry preserved "vaccine" —that is, cloth soaked in the contents of variolous vesicles, allowed to dry and kept for a long period—would contain the spores, and would therefore be as potent as true small-pox. The same would apply to the Chinese method of inoculation by blowing the dried crusts into the nostrils. These various operations must have been much milder in their effects than true small-pox, otherwise they would have lost their popularity. Shaheen and his Dawaimeh epidemic will, however, have served some useful purpose if it is only to remind us that a "disease" called variola inoculata was once extremely popular, that it took a very fine observer, Jenner, to supersede it with a better "vaccination," and to set us wondering again why small-pox is such a severe infection when acquired naturally, so much less so when its propagation depends on inoculation, and so wonderfully harmless when passed through the calf.

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[1] Since writing this paragraph I have seen it stated in a French journal that the Armenians were in the habit of producing variola inoculata by eating raisins into which had been pushed the dried crusts of variolous lesions.

My thanks are due to Mr. R. O. Sibley, late chief of the Epidemiological Section of the Department of Health in Palestine, and to Mr. G. W. Stuart, who is in charge of the Laboratory Section, for their suggestions and advice, to Mr. Sibley's successor, Mr. W. J. P. Harkness, and to the two doctors, Ayoub and Mossauba, on whose devoted shoulders fell the heavy load of the routine work.

*Bibliography.*

Osler: The Principles and Practice of Medicine, 1912 edition.

J. A. Mitchell: Small-pox and Amaas in South Africa, THE LANCET, 1922, ii., 808.

Infectious Diseases: C. B. Ker.

Manual of Tropical Medicine, Castellani and Chalmers, 1907 edition.

Preventive Medicine and Hygiene, Rosenau, fourth edition.

Infectious Diseases Returns, 1921-1922, Department of Health, Government of Palestine.

Bulletin de l'Administration Sanitaire des Frontières, Constantinople, 1921–1922.

Office International d'Hygiène Publique, Bulletin mensuel, 1921–1922.

Rapports Epidémiologiques (Mensuels et Spécials) de la Section d'Hygiène de la Société de Nations, 1921–1922.

Infectious Diseases Returns, Government of Egypt, 1921–1922.

Infectious Diseases in Animals Returns, Government of Palestine, 1921–1922.

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## THE DOCTOR'S CAR: AN INCOME-TAX SNAG.

UNDER the Finance Act of 1925 a professional man is entitled to claim a deduction from his income-tax for the wear and tear of the car he uses in his work. Several practitioners who applied for this, however, found that they were worse off than if they had refrained, for the assessor, turning up their returns of the last three years, discovered that they had claimed "replacement" when they bought their cars. This allowance he added back, on the principle that they could not eat their cake twice over, and the resulting jump in their average was considerably larger than the amount they were claiming for wear and tear. To take a fictitious but typical example: a doctor buys a car in 1922 for £350, and has this sum allowed him free of tax as a necessary "replacement." In 1925 he claims for wear and tear at 20 per cent. of the written-down value at the beginning of the year, which, allowing 20 per cent. depreciation per annum, will be in the neighbourhood of £45. When the assessor adds back the £350, his average will go up by one-third of this—£117. It would not be much better if the car were only a year old, for a fifth can never equal a third. This is true for all first cars, but when the new car is really a replacement, and has cost more than the amount allowed by the Income Tax Department (cost of old car less sale price) it may be worth the doctor's while to claim. A doctor, for instance, wants to replace his Morris-Cowley, which cost him £280 three years ago, by a car costing £800. He sells the Morris for £91 and is allowed £189 for the replacement. If at the end of the first year he claims £160 wear and tear on the new car, and the £189 is added back, he will get off £160 minus £63; £97.

The owner should, therefore, decide before making his claim which he would rather do, claim or wait. If the car was bought in 1922 it will be out of the picture in the 1926 assessment anyhow, since 1922 is not one of the years on which his average is calculated, and he can claim. If in 1923, then he would do better to waive his claim this year, unless it cost him so much more than his "replacement" allowance that he gains on it. The problem is intimately bound up with the actual depreciation the car undergoes, but it certainly looks as though the "replacement" rebate, when it covers the whole cost of the new car, were more worth having than the diminishing wear and tear allowance.

The best plan of all would be to get a really good car that would last for years with little depreciation. Waiving the wear and tear claim for three years, the owner would then start claiming depreciation on the actual value of his car, calculated not on three years' depreciation at 20 per cent. each, but at the average market price of similar cars. This means, however, a second-hand Rolls or Bentley, which comparatively few can afford. The trouble is that only a really first-class car will actually depreciate at less than 20 per cent. per annum, in spite of the claims of other manufacturers. The car should be a year old originally to avoid the heavy depreciation of the first year. 25 per cent. is the minimum market-price of a car's virginity.

## THE GOLF SWING.

DURING what a humorous custom insists shall be called seasonable weather, the golfer must perforce lose many hours of priceless time, but he need not waste them. He may remember and repent of his sins of the past summer and autumn; and he may seek inspiration for the coming spring. Should he belong to the class of hopeful duffers, we recommend to his notice a book by Dr. James Forrest[1] who by the study of moving pictures, has arrived at very definite ideas about the golf swing. Particularly has he analysed the illusive "wrist action" beloved of golf instructors. The thesis is presented clearly and well and is illustrated by a series of excellent photographs. His theory appeals to us; we have practised it indoors, and, making proper allowances for the restrictions imposed by furniture and electric light fittings, it seems to work. It will be interesting to see how it behaves on the links.

## WHITE WINE ANAPHYLAXIS.

ALTHOUGH wine is responsible for many evils, few would suspect it of containing albuminoids; nevertheless, the experiments of MM. Spillmann and de Lavergne at Nancy, reported in a recent issue of the *Presse Médicale* (1925, No. 81), show conclusively that the cheaper brands of white wine will produce as unpleasant an anaphylactic rash as pork, lobster, and strawberries. Their first subject was a "polyvalent," to whom eggs, bacon, strawberries, and many kinds of fish were poison, and he had already discovered this property of white wine for himself. Red wine, vintage white wine, and champagne were harmless, but a glass of "petit vin" would bring out a rash on his arms and back with the utmost regularity. His discovery was verified in hospital, and in skin-reaction tests checked by controls. White wine, together with egg-yolk, sardine, and bacon, produced a papulo-pruriginous eruption in a quarter of an hour. He was insensitive to ovalbumin and horse serum, and to several other substances that commonly produce anaphylactic symptoms. The controls gave uniformly negative results for all these substances. The explanation is interesting. It appears that red wine contains a large amount of potassium bitartrate, the gradual precipitation of which clears it, but white wine will not clear unless it has added to it a quantity of some kind of glue. Wine merchants are very careful to use in champagne and vintage wine only the minimum quantity necessary, but with cheaper brands one middleman after another may add glue to the same barrel of wine. The substances in use are fish-glue, gelatine-glue, blood-glue and white of egg, as well as certain compositions, and the proportion in the wine may reach one-half of 1 per cent. The blood-glue by itself gave positive anaphylactic results in guinea-pigs, but the wine did not, presumably because the few cubic centimetres injected did not contain an appreciable amount of glue. The fact that a glass of the same wine on an empty stomach cleared up the rash that it had brought out when it was taken with food suggests a justification for the otherwise deplorable apéritif habit. The common reaction of the patient and the two controls to the external application of red wine is reminiscent of the current experiments of Widal on the relative liability of various wines to produce gout. Although this reaction bears all the marks of an anaphylaxis there is no easy explanation of albuminous glue or the like. The offensive constituent in red wine remains an unsolved mystery.

Messrs. Reynolds and Branson, Ltd. (13, Briggate, Leeds), in issuing a wholesale price-list dated January, 1926, call attention to an addition of 15,000 square feet to the floor space of their factories for the manufacture of surgical and scientific instruments, pills, and tablets, and five excellent full-page photographs are given of their present equipment. They announce an arrangement made at 14, Commercial-street, Leeds, for giving demonstrations with ultra-violet light, X ray and other electrical apparatus, including a new pattern of quartz mercury lamp to use current direct from the main, whether alternating or continuous.

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[1] The Basis of the Golf Swing. By James Forrest, M.B. London: Thomas Murby and Co. 1924. Pp. 60. 6s.

THE LANCET, JANUARY 30, 1926.

# New Researches
## ON THE
# CHEMOTHERAPY OF SYPHILIS.

*Being an Address delivered to the Section of Dermatology of the Royal Society of Medicine on Jan. 21st*

BY C. LEVADITI,
OF THE INSTITUT PASTEUR, PARIS.

IN the Harben lectures, delivered in December, 1923, and subsequently published in the *Journal of State Medicine*, I discussed the therapeutic action of bismuth in syphilis, and that of arsenic administered per os in the form of stovarsol. My later investigations into the action of stovarsol in yaws, amœbiasis, spirillary infections, and malaria will be found in a paper in THE LANCET of Sept. 19th, 1925, p. 593.

In this lecture I shall, therefore, confine myself to a detailed review of the latest investigations into these matters.

### 1. MODE OF ACTION AND OF ABSORPTION OF BISMUTH IN THE TREATMENT OF SYPHILIS.

In a previous paper Messrs. Levaditi, Nicolau, and Mlles. Salgue and Schoen[1] demonstrated that for the destruction of the treponema in the chancre of rabbits treated with basic tartro-bismuthate (trépol) very minute quantities of bismuth are required, so small, in fact, that it was impossible to detect them by the usual methods of titration. Since then, however, Mr. Girard has devised a quantitative method by which 1 "microgramme" (1/1000th of a milligramme) may be estimated in the tissues or body fluids. The following facts relating to the mechanism of the destruction of the spirochæta in the specific lesions have been obtained by this method.

EXP. 1.—Rabbit 81B. Weight=2250 g. Showed two large syphilitic chancres of the scrotum (Truffi's virus); it was given 0·1 g. of trépol per kg. of weight (intramuscularly). On the fourth day all treponemata had disappeared and the lesions were smaller. The animal was killed.

EXP. 2.—Rabbit 91B. Weight=2850 g. Two large chancres of the scrotum. Same treatment, similar results. The animal was killed on the sixth day.

The injected muscles, several organs, and the chancres were examined histologically as well as chemically.

*Histological Examination.*—The histo-chemical method[1] shows the presence of bismuth almost exclusively in the injected muscle. In the muscle the diapedetic process is intense, and reaction phenomena are evident (giant cells, fibroblasts). No lesions of the organs.

*Quantitative Analysis.*

| Rabbit. | Bi content in a gramme of dried substance. | | | | | | |
|---|---|---|---|---|---|---|---|
| | Bi (in microgrammes). | | | | | | Bi (in milligrammes). |
| | Lung. | Spleen. | Liver. | R. testis. | L. testis. | Kidney. | Injected muscle. |
| | µ mg. | µ mg. | µ mg. | µ mg. | µ mg. | µ mg | mg. |
| 81B (killed on fourth day) . | 30 | 48 | 4 | — | 3 | 14 | 17·5 |
| 91B (killed on sixth day) . .. | 10 | 6 | 2 | 2 | 2 | 21 | 8·0 |

*Quantitative Analysis (continued).*

| — | Bi in the chancre. | | | |
|---|---|---|---|---|
| | Rabbit 81B— | | Rabbit 91B— | |
| | in 1 g. of dried substance. | in the whole chancre. | in 1 g. of dried substance. | in the whole chancre. |
| | µ mg | µ mg. | µ mg. | µ mg. |
| Right chancre | 4·5 | 2 | 5·8 | 2 |
| Left chancre | 10·0 | 2 | 4·3 | ±1 |

These results prove (1) that the Bi content of the organs is higher in the rabbit killed on the fourth day than in that killed on the sixth day; (2) that the kidney, lung, and spleen show the largest amounts of Bi; (3) that the lesions contain infinitesimal quantities of Bi. Thus, the destruction of the treponema in the chancres requires amounts of Bi varying between 1 and 2 µ mg. for the whole lesions—that is, between 4 and 10 µ mg. for 1 g. of dried substance. These amounts are hardly larger than those for unreactive tissues, like the liver or testis. From this it follows that the *lysis of the spirochætes occurs under the action of infinitesimal quantities of Bi, no accumulation of the metal taking place in the actual situation where this lysis is brought about.* The destruction of the parasite by Bi appears then as a lytic process, in which mere traces of the metal seem to act as a catalytic agent towards the spirochæticide principles supplied at a given time by the infected organ. As a matter of fact, it is well known that the specific lesions become at length cicatrised, the treponemata preserving their vitality as long as the lesion exists. On the other hand, minute quantities of Hg, As, Bi, and even vanadium, quicken considerably this slow lysis of the parasites. The analogy with certain enzyme processes, which are much accelerated by certain metallic catalysts, becomes thus strikingly obvious.

*Histo-chemical Study of the Mode of Absorption of the Bismuth Compounds.*

After the discovery by Sazerac and Levaditi of the curative action of bismuth in syphilis, it became necessary for the study of its absorption to work out an histo-chemical method for the detection of the metal in the tissues. We have been able to devise such a method, which was reported in the paper already referred to.[1] Our results were as follows:—

*Technique of the Histo-chemical Method* (derived from the analytical method of Leger-Aubry).

Fix with Dubosq-Brasil-Bouin's fluid for 1–5 days. Wash with ordinary water for six hours. Then place the pieces of tissue in the following mixture: potassium iodide, 4 per cent., quinine sulphate, 2 per cent., equal parts, for 6–8 hours at 37° C. Wash with distilled water, alcohol, xylol, and imbed in paraffin. The sections, after removing the paraffin and staining, are immersed in the following mixture: potassium iodide, 2 per cent., quinine sulphate, 2 per cent., equal parts, for two hours at 37° C. The sections are then mounted with or without a counter-stain.[2]

*Delicacy of the Method.*—Applied to the examination of muscles of rabbits injected with solutions of K and Na tartro-bismuthate, varying from 0·01 g. to 0·0001 g., it has proved to be sensitive up to this latter degree (1/10,000), both the tissue in paraffin and the 10 µ section being obviously stained in red. The amount of Bi contained in one single section (5–8 µ) of the injected muscle has been estimated by Mr. Girard to be about 20 microgrammes.

*Experiment.*—Four bismuth compounds have been used: insoluble basic tartro-bismuthate; metallic bismuth in a fine suspension; soluble K and Na tartro-bismuthate; and the proteo-metallic bismuth compound named bismoxyl.[3] We have thus studied the mode of absorption of Bi in all the forms used. The injection was made into the back muscles of infected rabbits showing chancres of the scrotum or into healthy animals. The rabbits were killed from the first day to the thirtieth, and the injected muscle and several organs (liver, kidney, spleen, brain, &c.) were examined for bismuth. Moreover, in the case of several animals, chemical analyses were carried out by Mr. Girard.

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[1] Levaditi, Nicolau, Mlles. Salgue and Schoen: Comptes rendus Académie des Sciences, 1924, clxxix., 939.

5R314

[2] As a counter-stain, we prefer the Curtis method.

[3] Levaditi and Nicolau: Annals Inst. Pasteur, 1924, xxxviii., 179.

Our conclusions were the following:—

1. The bismuth compound given by the intramuscular route is absorbed according to its solubility. Whereas the insoluble derivatives remain for a long time in the injected muscle, the absorption taking place slowly and gradually, the soluble compounds, on the other hand, are quickly assimilated, and leave only a very slight residuum. The sudden and massive elimination of these soluble derivatives may bring about in the kidney certain lesions which are not to be found in the animals treated with insoluble bismuth salts, even when the latter were administered in a higher dose.

2. The insoluble bismuth salts, as well as metallic bismuth itself, are not absorbed unless previously rendered soluble within the tissues. The local process of leucocyte proteolysis seems to bring about this solution. The derivatives, thus made soluble, attach themselves to the tissue protein substances and give rise to some proteo-bismuth compounds where the metal is hidden. It is in this form that it travels throughout the body and is eliminated through the kidney. This is demonstrated by the fact that it is impossible to detect the presence of bismuth in the organs (kidney, spleen, and brain) by the histo-chemical method, whereas the analytical process (after a previous destruction of all organic matter) reveals a relatively enormous amount of the metal.

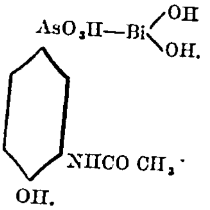
3. The administration of bismuth into the muscle occasions diapedesis, and degenerative and regenerative phenomena, which are more evident with insoluble compounds than with soluble salts or proteo-metallic derivatives. Bismoxyl seems to be, among the latter, that which causes the least local alteration.

4. The part played by phagocytosis in the absorption of bismuth, as we pointed out in 1922,[4] seems more slender than might be supposed at first.[5] The white blood cells, the fixed cells, and the endothelial cells, in fact, the reticulo-endothelial system, act as phagocytes towards the bismuth particles.[6] It does not however, appear that these phagocytic cells allow the bismuth to travel throughout the body. On the contrary, everything seems in favour of the idea that the phagocytes, by fixing the metal, help in the formation of a bismuth "depôt," to which must be ascribed the success of this lasting and efficient therapy of syphilis.

5. This depôt is much greater in the case of insoluble bismuth salts. The muscles retain these salts during several months, supplying the body with relatively minute quantities of an organo-metallic salt, containing hidden bismuth, which are sufficient for the destruction of the treponemata.[7]

## 2. RESULTS OBTAINED WITH BASIC ACETYLOXYAMINOPHENYL ARSINATE OF BISMUTH.

We shall now report our investigations concerning a new compound containing both bismuth and arsenic—namely, basic acetyloxyaminophenyl arsinate of bismuth. When, under certain conditions, the sodium salt of acetyloxyaminophenyl arsinic acid (stovarsol, As content 27 per cent.) and sodium potassium bismuth-tartrate (Bi, 30 per cent.) are brought together, both in concentrated aqueous solution, a white precipitate appears. This precipitate, after several washings, when dried at 50° C., appears as a yellowish-white powder, insoluble in water, but soluble in caustic bases. Chemical analysis proves this substance to be a new compound with the following formula:—



Bi content, 11 per cent. (40·2).
As content, 15 per cent. (14·5).

We have had the action of this compound under investigation since October, 1924. Our results are as follows:—

*Experimental Syphilis.*—The salt has been used as a flocculent suspension either in saline or in oil (10 per cent.). The injection was made into the muscle.

(*a*) Suspension in saline: Bi = 0·0125 g. per c.cm. As = 0·00157 g. per c.cm.

Rabbit 50: Severe lesions, showing numerous treponemata. Weight, 3330 g. Received 1·0 c.cm. per kg.—that is, 0 0125 g. Bi and 0·0015 g. As. Oct. 12th, 1924: Complete healing after four days. No loss of weight. No relapse.

Rabbit 51B: Severe lesions, numerous parasites. Weight, 2700 g. Received 0·5 c.cm. per kg.—that is, 0 0062 g. Bi and 0·00225 g. As. Oct. 23rd, 1924: Complete healing after five days. No relapse.

Rabbit 12D: Severe lesions, numerous treponemata. Weight, 2000 g. Received 0·1 c.cm. per kg.—that is, 0·00125 g. Bi and 0·00015 g. As. Oct. 23rd, 1924: Complete healing after five days. No relapse.

Given in a dose of 0·05 g. per kg. the compound showed no effect. It follows that the *bismuth-arsenic derivative administered as a flocculent suspension in saline proves to be efficient in the cure of experimental syphilis with a dose of 1·5 mg. Bi per kg.* The ratio of the curative to the toxic dose C/T exceeds 1/10 (estimated as Bi).

(*b*) Oil suspension: (10 per cent.: 0·041 g. Bi and 0·015 g. As per c.cm.).

Rabbit 70D: Chancres of the scrotum with numerous parasites. Weight, 2600 g. Received 1·0 c.cm. per kg. (0 041 g. Bi and 0·015 g. As) on Jan. 12th, 1925. The lesions quickly healed.

Rabbit 804A: Severe lesions, many parasites. Weight, 1850 g. Received the same dose (0·041 g. Bi and 0 015 g. As per kg.). Complete healing without relapse after five days.

These findings prove that the arsenic-bismuth compound in an oil suspension exhibits a curative action in experimental syphilis in a dose of 0 041 g. Bi per kg. Our experiments in the mouse nagana and fowl spirillosis demonstrated that the new derivative is also efficient as a preventive and curative agent in the case of these infections (the preventive dose for the fowl corresponds to 0·0036 Bi per kg.).

These results induced us to try the new product in the treatment of human syphilis. The findings of Messrs. Fournier and Schwartz brought full confirmation of our own results. These authors have treated 20 syphilitic patients with chancres or secondary lesions. In spite of the small number of patients and of the short period of time since the beginning of the treatment they are firmly convinced of the high therapeutic value of the product. Nineteen patients received 12 intramuscular injections of 2 c.cm. each of a 10 per cent. oil suspension—i.e., 0·984 g. Bi and 0·36 g. As). A single patient was given two series of ten injections with a month's interval between. The injections were given twice a week. The drug was perfectly tolerated, there was no painful local reaction, and no general reaction. One patient, however, showed, after 12 injections, a mild erythema of the arsenic-erythema type There was no albuminuria and no irritation of the gums. The general condition always remained perfect with no weariness and no loss of weight, as may be observed in the use of a number of bismuth compounds. Probably this favourable characteristic is due to the presence of arsenic, which renders the drug specially useful for patients in poor condition.

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[4] Levaditi: La Presse Médicale, No. 59, July 26th, 1922.
[5] Sazerac and Vaurs: Annales Pasteur, 1925, xxxix., 86.
[6] Levaditi, Nicolau, Mlles. Salgue and Schoen: Loc. cit.
[7] Levaditi and Girard: C.R. Acad. des. Sciences, 1925, clxxx., 420.

The treponemata disappeared 24 to 48 hours after the first injection; with two patients the sterilisation of the lesions followed the second injection. The cicatrisation was effected very rapidly, as with any of the best bismuth preparations. The drug had a similar action on all general manifestations when they were present. Fourteen patients, who were kept under observation during subsequent months, did not show any relapse.

The effect on the blood reaction was quite obvious. With two patients who had a negative blood W.R. it constantly remained negative, but of 12 subjects with a positive blood W.R. 6 gave a negative result a few days after the beginning of the treatment; with 4 others the blood W.R. was considerably attenuated; and with the 2 last the reaction was not quite so favourably influenced.

From the above findings Messrs. Fournier and Schwartz drew the following conclusions:—

1. The basic acetyloxyaminophenyl arsinate of bismuth is perfectly tolerated and is not handicapped by the inconvenience met with in the use of the ordinary bismuth compounds.

2. The effect on the treponema and on the lesions appears as quickly as it does with the best anti-syphilitic drugs. No relapses are observed.

3. The effect on the blood reactions is quite obvious. A negative test may be obtained after a single series of 12 injections.[8]

These facts have been fully confirmed by Messrs. Nicolau, Doskocil, and Galloway,[9] who have examined the action of the arseno bismuth derivative in the experimental trypanosomiasis of the mouse and rabbit (nagana) and in fowl spirillosis. The compound has proved to have an evident spirillicide and trypanocide effect in vivo

Lastly, further researches by Mr. Popoff [10] furnish another attestation of the above-reviewed facts. This investigation concluded that "the basic acetyloxyaminophenyl arsinite of bismuth has a high antisyphilitic power in the primary or secondary stages of the disease, and even in an old latent syphilis the treponemata disappear and the lesions become cicatrised, while the blood test becomes negative. The change in the blood reaction often takes place some time after the end of the treatment, which proves that the action of the drug is extended over a long period of time. From this point of view it behaves like the bismuth compounds which form a 'depôt' assuring the lasting and deep therapeutic effect of the metal."

### 3. THE ACTION OF GOLD AND PLATINUM AS SPIRILLICIDE AGENTS.

We have investigated the therapeutic power of *gold and sodium thiosulphate* in experimental syphilis of the rabbit. This salt, which has a gold content of 37·1 per cent., was introduced into the therapeutics of tuberculosis by Mollgaard; 0·05 g. per kg. seems to be the maximum tolerated dose when given intravenously. By the subcutaneous route the salt is well tolerated in doses varying from 0·01 g. to 0·03 g per kg; two rabbits received 0·05 g. per kg. One died on the fourth day, the other survived.

*Therapeutic Action* (Truffi's virus and *Sp. cuniculi*).

(*a*) *Intravenous Route.*—Evident curative effect with a dose of 0·05 g. per kg. (0·018 g. pure gold). Spirochætes disappeared on the second day.

(*b*) *Subcutaneous Route.*—The smallest curative dose is 0·02 g. (0·0074 g Au) per kg. (No more spirochætes on the second day; cicatrisation of the lesions on the fourth day; no relapse.) The therapeutic power, although inconstant, was still apparent in a dose of 0·01 g. (0·0037 g. Au) per kg.

(*c*) *Buccal Route.*—Contrary to all expectation, the gold compound, administered by the mouth, brings about the sterilisation of the lesions after two days, and their cicatrisation after 3–5 days, in a dose of 0·20 to 0·50 g. per kg. Given in this way, therefore, gold is absorbed by the digestive mucous membrane.

These findings demonstrate that the gold and sodium hyposulphite has a curative action on the experimental syphilis of the rabbit (Truffi's virus) and on the disease due to *Spirochæta cuniculi.* The ratio C/T, as found by the subcutaneous route, stands around ¼. The compound is efficient when given by the mouth. Further tests have proved that it exerts a real prophylactic action in fowl spirillosis at a dose of 0·01 g. to 0·02 g. per kg.

The results obtained with gold suggested to us the idea of experimenting with platinum in the form of platinum and sodium thiosulphate. This salt has been given by subcutaneous injection in a dose of 0·015 g. to 0·03 g. platinum per kg. to several rabbits infected with *Sp. cuniculi.* In one of these animals the lesions were rapidly cicatrised and the parasites disappeared, two others did not show complete healing, and the lesions were but partially sterilised.

It follows, therefore, that gold, and to a lesser extent platinum, is endowed with spirillicide and treponemicide properties in vivo. These properties are far less marked than those of bismuth. There seems to be a correlation between the atomic weight of these metals and the therapeutic action; bismuth (A. wt.=208) is more active than gold (197·2), which is itself more efficient than platinum (195·2). The form in which gold is given, too, seems to be of great importance. As a matter of fact, the doses being equal or even higher, the potassium and gold chloride and colloidal gold prepared by Mr. Fourneau are totally inactive. We may presume that other metals belonging to the same group (Os, Ir, Ru, Rh, Pd) would have similar properties. Their study is being undertaken.

Such striking results warranted a careful examination of the therapeutic action of gold in human syphilis. The tests have been carried out by Messrs. Fournier and Mollaret.[11] Their conclusions were as follows.

The sodium and gold thiosulphate has an indisputable and rather powerful antisyphilitic action when used in large doses (around 1 g) by intramuscular or intravenous injection. Under those conditions treatment is attended by the disappearance of the treponemata, the rapid cicatrisation of the lesions, and a favourable change in the blood reactions. With small doses the effect is much slower and questionable. The use of this compound is attended by serious inconvenience such as general reactions, cutaneous manifestations, and even the production of albuminuria which constitutes a real drawback to its constant use in the cure of human syphilis; at least, under the form we described.

We must remember, however, that Bruck and Glück,[12] as well as Mario Truffi,[13] had already called attention to the curative properties of potassium and gold cyanide and of gold chloride in human and experimental syphilis.

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[8] L. Fournier and A. Schwartz C.R. Académie des Sciences, June 22nd, 1925, clxxx., 1073

[9] Nicolau, Doskocil, and Galloway C R. Soc. Biologie, July 25th, 1925, xciii., 580.

[10] L. Popoff: Ibid, July 25th, 1925, xciii, 577.

[11] L. Fournier and P. Mollaret: C.R. Acad des Sciences Dec. 7th, 1925, clxxxi., 913

[12] Bruck and Glück: Münch. med. Wochenschr., 1913, No. 2, p. 57.

[13] Mario Truffi Pathologica, 1913, t. v., p. 397.

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A DIRECTORY entitled "Annuaire Médical de Grèce" containing information on medical facilities and the names of doctors, chemists, midwives, and others in Greece is published in French and Greek by Amael and Mazza, Boîte Postale 18, Athens, at 10s.

# REMARKS ON
# MANIPULATIVE TREATMENT.

*Being the Two Opening Papers read at a Discussion at the Medical Society of London on Jan. 25th, 1926.*

I.—BY W. ROWLEY BRISTOW, M.B. LOND., F.R.C.S. ENG.,
ORTHOPÆDIC SURGEON TO ST. THOMAS'S HOSPITAL.

II.—BY R. C. ELMSLIE, M.S. LOND., F.R.C.S. ENG.,
ORTHOPÆDIC SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

## I.—BY W. ROWLEY BRISTOW.

MANIPULATIVE surgery or manipulative treatment should lend itself well to discussion if only for the reason that every year or two brings forth a heated controversy on the subject in either the medical or the lay press, or both. The same well-worn arguments crop up, and, in the lay press at least, a list of distinguished and titled personages who have benefited generally follows, together with letters of gratitude. That this gratitude is given to those who practise bonesetting and are unqualified has led the public to believe that this form of treatment is not included in the armamentarium of the qualified surgeon or practitioner. In these articles, too, all the patients are grateful; failure is relatively unknown, and it is only the doctor who has blundered.

What are the true facts? It is a platitude that adequate treatment necessitates an accurate diagnosis. Diagnosis depends upon an understanding of the anatomy and the pathology of the part affected. Now, is it true that those unqualified practitioners, who have not had the advantage of a general medical education, whose fundamental grounding is necessarily at fault, succeed and the qualified man fails?

### *The Errors of Ignorance.*

I suppose that all of us can recount instances when the patient has failed to benefit in the hands of the unqualified practitioner, and has responded readily and well to orthodox treatment.

In February, 1919, I was consulted by a patient, S., complaining of trouble with the knee. He had had trouble with the other knee and had consulted a bonesetter who had arranged to manipulate. With the patient's consent, I wrote to the bonesetter and told him that I should be glad to witness his manipulation. I wanted to see whether the method used differed in any way from that which I employed. I received a letter saying that the bonesetter regretted that he could not allow me to be present, but that he hoped I would particularly watch the outcome, as this was the type of injury in which "he was pretty uniformly successful." The symptoms were those of recurrent dislocation of the semilunar cartilage, which in my experience was not likely to be cured by manipulation. The patient was not benefited, and a little later I removed the torn cartilage, since when he has had no further symptoms.

Rarely, but very rarely, does manipulation cure a true cartilage lesion—that is, one in which the cartilage is torn and is at times displaced across the joint. Sometimes it may be possible by great force to rupture the so-called bucket handle and allow the torn meniscus to roll up into the inter-condyloid notch; but with the history of repeated recurrence open operation is the safer and more certain procedure. It was interesting to find that in spite of repeated invitations—as I understood them—in the public press the unqualified practitioner was not prepared to allow an orthopædic surgeon to witness his manœuvres.

In April, 1922, a professional footballer, G., was brought to me with a similar history. The same bonesetter had manipulated the knee, and told him he could carry on and play football. At the first attempt the symptoms recurred, and shortly afterwards I removed a torn cartilage from the joint.

In my own practice a similar sequence of events occurs fairly frequently. There is no object in multiplying examples. A less common type of error is when the unqualified practitioner has had a true dislocation to deal with, when a bone has really been out of place, and he has failed to recognise the fact. A child was admitted under my care at St. Thomas's, who had been under a bonesetter for either three or six months, because she walked badly. The manipulative treatment of the spine to which she had been subjected had been ineffectual, because the child was suffering from congenital dislocation of the hip, calling for manipulative reduction. This is an instance of what is perhaps the greatest danger of unqualified practice—namely, the inability to make a correct diagnosis in a simple case.

Within the last week I saw a lady who teaches folk-dancing, and who was suffering from footstrain from overuse. On visiting the bonesetter, she was told that ankles, knees, hips, and spine were all "out," and that two weeks' treatment in his home was essential. She became suspicious and refused treatment, because a certain cure was offered by the same man for her husband who had suffered with osteo-arthritis for many years and was a complete cripple. Moreover, the cure was offered as certain and rapid—it was to take only a week—on her mentioning the fact of her husband's disability. There was apparently no necessity for any preliminary examination.

Another patient, with stiffness of the spine and swelling of the ankles, had spent some weeks and much money on treatment by an osteopath. He was no better. The symptoms were due to a focus of infection, gonococcal in origin, in the prostatic urethra. His symptoms are clearing up under appropriate treatment.

### *Confidence and the Mystic Rites.*

These examples, and they are a few selected at random, are quoted to show that there is reason to believe that the failures of the unqualified are many. It is an unpleasant, although I deem it a necessary task to call attention to the fact. It is not a personal question. Any surgeon whose work and interest lay in bone and joint surgery would have done as I did. I do not wish to imply that we always succeed and that the bonesetter always fails. One man may fail with a patient when another, equally (but no better) armed, and with no greater experience, will succeed. The personal factor is of importance. Many men, with no very obvious qualification, succeed, while the more highly qualified may be failures. I do not mean in the financial sense, but in the sense of succeeding with and of benefiting their patient. Personality counts for much. Experience counts for much. A combination of the two, even when the basis of the work done is empirical, does produce good results. The bonesetter has many successes, but if empiricism rather than knowledge is the foundation on which he works unnecessary errors must creep in.

There is one way in which the unqualified practitioner sometimes scores, and that is because he takes a risk which we are not prepared to take. If we cannot be sure of the diagnosis we must play for safety.

I remember seeing a girl complaining of trouble in the lower part of her back, and I was not certain whether this was due to an inflammatory lesion or not. The X ray left me still in doubt. I saw her in consultation with another surgeon, of great experience, and we were unable to exclude the possibility of her symptoms being caused by disease. We therefore recommended fixation and rest. We heard afterwards that this patient was taken to a bonesetter, who manipulated the spine and cured her.

This is an example of what sometimes happens, and is, I think, bound to happen. That patient is probably going about saying that the profession failed her, and that she was cured by a bonesetter. It is our business to see that this occurs as seldom as may be.

From time to time, when manipulative surgery is discussed by members of the profession, it is hinted that there is something yet to learn—some manipulative art which has been handed down outside the ranks of the regular practitioner, and which he either will not or cannot acquire. The matter is really very simple, and Sir Robert Jones, in his Cavendish lecture, puts it clearly. He says:—

"Let me emphasise the statement that there is nothing which the manipulator does which cannot be more safely undertaken by any practitioner, who possesses a knowledge of the pathology and elementary anatomy of the joint, but he must become familiar with methods of manipulation which are safe and thorough. . . . Let it be fully realised that there are no hidden or mystic rites in the art of bone-setting."

The group of surgeons who are specially interested in bone and joint surgery—and there are over 150 members in the British Orthopædic Association—practice manipulative treatment. I would hazard a guess that year in and year out, the number of patients so treated must run into thousands. This branch of therapeutics is by no means left only to the bonesetters, the osteopaths, and the chiropractors.

A little book entitled "The Medical Follies," written by Dr. Morris Fishbein, a member of the American Medical Association, and sometime editor of its Transactions, has been published recently. The author gives a history of the many forms of quackery and tells of the origin and growth of osteopathy and chiropractic. He summarises very neatly as follows:—

> "It has been said that osteopathy is essentially a method of entering the practice of medicine by the back door. Chiropractic, by contrast, is an attempt to arrive through the cellar. The man who applies at the back door at least makes himself presentable. The one who comes through the cellar is besmirched with dust and grime; he carries a crowbar and he may wear a mask!"

No good purpose will be served in going over old history. We must bear in mind, however, that Wharton Hood in 1871 published a small book in which he dealt quite fully with the subject as appreciated at that time. This book was based on what he had learnt from Hutton, the best known unqualified exponent of manipulative treatment of his period. It is true to say that Wharton Hood's teaching was not well received; but the fact remains that the so-called secrets were laid bare, and the mystery was cleared up.

### *Neglect of Manipulation.*

The methods of manipulative treatment were not absorbed into the general practice of medicine, because the teachers in the medical schools did not recognise their value. There were exceptions, but the statement is fundamentally true—and it is true to-day. The field for manipulative surgery lies largely in the treatment of minor injuries, and to a less extent of chronic joint disease. This is the type of condition which loses its perspective in hospital practice. The graver conditions are those which arrest the attention of the surgeon. Go to what hospital you will, or read the operation lists as posted in the Royal Society of Medicine—you find surgery on the grand scale. There would seem to be no room and no time for adequate attention to be given to those minor disorders, which cease to be minor as soon as the student leaves the hospital and goes out into practice. I do not wish to go outside the bounds of the subject and I do not wish on this occasion to be thought to hold any brief for specialism or segregation, but facts must be faced.

It is not likely that any man can teach and arouse the student's interest in a subject of which he himself has no first-hand knowledge, and the practice of which branch seldom comes his way. If you read in the lay press articles about bonesetters and their cures, you will often notice that the patient has seen previously one or more distinguished members of the profession. You and I know that the choice made was unwise; that the expert whom they consulted was one whose admittedly great ability lay in other fields of surgery. He was not a surgeon whose interest, and therefore of necessity whose experience, lay to any extent in bone and joint surgery.

My own opinion is that it would be wise for those who control medical education to examine their premises, and to consider whether in the huge curriculum which now obtains, sufficient time and care is given to the instruction of the student in these minor ailments which form so large a part of practice. The first point which I venture to suggest as worthy of discussion is that the examining bodies and school councils should have their attention called to this subject of manipulative treatment, and that its principles and practice should be brought more prominently before the student.

For the purpose of this discussion I have left out of consideration the accepted use of manipulative treatment in the correction and cure of deformity, as no good purpose would be served by a discussion from this point of view. For example, manipulation is generally used in the correction of congenital dislocation of the hip, of traumatic dislocations, and for the reposition of fractures. When we consider some of the conditions which are benefited, and inquire into the actual way in which they benefit—what change manipulation brings about—they fall roughly into two main groups. These are the conditions resulting from injury, and those resulting from disease.

### *Conditions Resulting from Injury.*

1. The so-called *internal derangement of joints*, most often met with in the knee, but also occurring in the wrist and the jaw. These joints have one feature in common; they contain an intra-articular fibro-cartilage, and it is sometimes in connexion with an injury to or displacement of this structure that the manipulation does good.

2. *Fibrosis of or about the Capsule: Adhesions.*—The differential diagnosis between this condition and arthritis of the joint must be borne in mind. With arthritis there is restriction of movement in all directions; with adhesions, limitation is noticed in certain movements only. The shoulder-joint provides a common example. Generally, flexion and adduction are free, whilst rotation and abduction are limited. The ankle-joint provides a second example, and the adhesions are commonly limited to the anterior fasciculus of the external lateral ligament. It is in connexion with the results of injuries to the knee-joint that manipulative treatment is perhaps most often discussed.

It has already been suggested that manipulation is sometimes called for because of an injury to the semilunar cartilage, but this is more often necessary when dealing with injuries to the other structures of the joint. Twists and strains of the knee, whilst they may injure the cartilage, more frequently damage the ligaments, and particularly the coronary ligaments. It seems likely that rupture of a few fibres of these ligaments, followed by hæmorrhage and organisation of the clot, brings about adhesions, with the matting together of structures, which account for the symptoms.

The diagnosis of cartilage injury is too often made when there is no real ground for it. In the latter part of the war, practically all the patients with knee-joint injuries were sent to the military orthopædic hospitals labelled as displaced semilunar cartilage. This is not the place or the time to discuss the differential diagnosis, but it is a fact that in the majority the cartilage was intact, and the knee was crippled from the result of injury with adhesions. Many of these patients were rapidly cured by manipulation. It is particularly with this joint that want of accuracy in diagnosis has enlarged the field for the bonesetter.

3. *Fibrosis of Muscle.*—The result of strain or injury is commonly met with in the back, particularly about the lower part of the erector spinæ. Lower backache is common. A voluminous literature has grown up around the lumbo-sacral and sacro-iliac joints. In the United States, if one may judge from the papers published in the journals, it is even more common. Now what are the remedies ordinarily taught to the student? It will depend a little whether the patient, he or she, reaches the medical, surgical, or gynæcological departments from the hospital sorting room. Routine examination reveals no abnormality, and X ray shows a normal spine and normal sacro-iliac joints. A thorough examination may reveal some pain or some restriction of movement on hyperextension or lateral bending of the spine.

Medicines, massage, liniments, electrical treatment, radiant heat, hot air, and the like remedies are tried. Sometimes they succeed, often they fail.

The bonesetter would generally cure such a patient. He would empirically employ forcible manipulation. I agree that the pathology in this instance is not certain, but it seems likely that adhesions have formed in some part of the muscle, or at its attachment to bone or fascia, as the result of injury or infection. Forced manipulation of the spine and pelvis will oftentimes result in complete cure. It is regrettable that such treatment is withheld until the patient has left her doctor or the hospital, and gone as a last resort to an osteopath.

### *Conditions Resulting from Disease.*

It is difficult, if not impossible, to lay down rules or to define exact indications for the use of manipulative treatment in dealing with chronic joint disease. Why, on one occasion, do we treat a stiff shoulder with rest, warmth, and the like, and on another advise forcible manipulation. We rely upon the accuracy of our diagnosis, on our estimation of the pathological state of the joint at the moment. If there is active inflammation, manipulation will lead to disaster; but we shall on occasion employ it with success, if the acute stage is passed, and there be limitation of movement.

Different joints behave differently. Mr. Elmslie is dealing with the subject regionally, and I am leaving the detail to him; but as an instance of what I mean I would recall to you the difficulty of treating stiffness of the fingers and of the metacarpo-phalangeal range. Forced manipulation may be called for, but if it is, then the newly acquired position should be maintained by fixation for a time. Forced manipulation followed by free use results in greater stiffness. On the other hand, we can sometimes restore a useful degree of abduction to a hip-joint, when this movement has been lost as the result of osteo-arthritis, and follow up our manipulation by active exercises.

In addition to appreciating the pathological state of the particular joint, we must form an accurate estimate of the personality of the patient. This is important. Will he be willing to put up with the necessary pain, which the conserving of this newly acquired range will entail? Will he follow the treatment through? It is in dealing with joint disease that we are often called upon to repeat the forced manipulation, perhaps two or three times; at each attempt an added range is gained. The joint will respond to this manœuvre, whilst it would stiffen if we attempted to gain the full range at one sitting. There are other points worthy of discussion—What is the best means of conserving the range of movement gained by forced manipulation? What is the after-treatment? Shall we employ massage, electricity, and exercises, or shall we for a time fix, in our new position, on a splint?

Manipulative treatment is known to us as a profession, but in the multitude of complex disorders, and in the wealth of methods, this simple, homely remedy has been pushed into the background. It is our duty to see that the student of to-day is trained in its use, and that its advantages and limitations are brought before him.

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## II.—BY R. C. ELMSLIE.

Manipulative methods, as carried out by unqualified practitioners who are variously classed as bonesetters, osteopaths, chiropractors, and otherwise, may be roughly divided into: 1. Manipulations of the affected part—e.g., for adhesions in or around such joints as the shoulder and knee. 2. Manipulations of some other part which is not obviously affected—e.g., manipulation of the spine as carried out by osteopaths. I will take this second group first, because it can be dismissed more easily. In most cases the whole procedure is so obviously irrational that it is difficult

by those who practise it. To manipulate a stiff or disabled knee is reasonable, to manipulate the cervical spine for goitre or for diphtheria, the dorsal spine for gastric ulcer, or any part of the spine for epilepsy, sounds so ridiculous that it is hardly necessary to subject the method to argument or to imagine that these methods will ever be taken up by the medical profession.

The osteopaths have no hesitation in citing medical opinion as favouring their methods. Here, for example, is one quotation from Hilton: "The pain associated with diseased spine is found upon the skin supplied by the nerves which escape from the vertebral canal through the intervertebral foramina." Severe abdominal pain, increased in the erect posture, is traced to "disease with slight displacement between the sixth and seventh dorsal vertebræ." Hilton is obviously speaking of the referred pain of spinal caries, but these words are lifted out of their context by the osteopath, as if they proved that small displacements of the vertebræ can cause visceral disease. Head's areas of referred pain are also quoted by osteopaths as proof of their thesis.

It is perfectly true that massage with passive and active movements of joints and properly regulated exercises can have a considerable effect upon certain visceral diseases. This is largely a medical question, but the medical side of the work of the masseur has been rather neglected by the profession, and it will amply repay some young physician to take the matter up and see whether careful investigation will not prove that there is a greater use for this type of treatment.

The bonesetters who carry out treatment by manipulation of the actual part affected are in some cases, I believe, honest and straightforward. They use methods which are largely the result of actual practice, but which are often well designed, and in the hands of some of them show a certain knowledge of anatomy and pathology. At any rate, the users of these methods gain experience and profit by it; they avoid gross errors of diagnosis, and they meet with results which show a degree of success that we must consider as to some extent merited. Sometimes they make evident mis-statements, which may or may not be deliberate. Thus they will say that there is a bone out of place where there is no bone to be out of place. It is difficult to say whether these mis-statements are due to ignorance or are made deliberately in order to impress their patient.

Other practitioners have less honest methods; their mis-statements are undoubtedly deliberate and exaggerated. Certain bonesetters, if a patient comes with a disability of the ankle, inform him that his ankle, knee, and hip are all out and must be manipulated. Following such a statement rule-of-thumb manipulations are made, which are sometimes successful, but sometimes, particularly in the case of neurotic patients, have disastrous other results.

Thus, I have recently had to treat an hysterical girl, who, having an undoubted disability of the knee-joint, was taken to a bonesetter. The knee and hip were both described as being out, and were manipulated. The knee got right, but the hip then developed a new disability in the shape of a severe hysterical gait; the girl had discovered, as the result of the manipulation, that she had naturally a snapping hip, which now became a real disability. Fortunately, the condition was recent and the patient was readily put right by a simple explanation of the anatomy of snapping hip.

In another case the results were more serious. A small foot disability was treated by manipulation of the lumbar spine and pelvis. The foot got right, but a persistent obsession has arisen, the patient believing that the whole spine and pelvis have now been put out by the manipulator. No amount of persuasion can cure her, and the obsession has become so severe that she must now be classed as a case on the borderline of insanity.

### *Methods of the Unqualified.*

In considering the methods of the unqualified manipulators, particularly whether anything can be points: 1. What are the conditions treated? 2. How do the manipulations cure them? 3. Why do we so constantly see reports of the successes of unqualified manipulators after surgeons have failed? 4. Why do we never see reports of the successes of surgeons?

Mr. Bristow has dealt generally with these questions, and I shall confine myself to a few special points. The reply to the fourth question is largely bound up in the fact that reputable members of the medical and surgical profession do not advertise in the lay papers. Some years ago I treated the stroke of one of the University boats a week before the race for a displaced semilunar cartilage with the knee completely locked in a flexed position. By manipulation under an anæsthetic the joint was put right so quickly that the boy was only out of his boat for 24 hours. The whole incident passed unnoticed, but it may safely be said that had the treatment been carried out by an unqualified bonesetter it would have occupied the central position in most of the papers of the day. Similarly, most of us have treated successfully prominent athletes and footballers, either by manipulation or by operation. In almost any big football match one or more of the players would be found to be minus a semilunar cartilage, which has been removed by some surgeon, leaving a knee strong enough to stand up to the most severe form of athletics. These facts never get publicity, and many people still think that an operation for the removal of a semilunar cartilage leaves a permanently damaged knee.

The third question is also largely one of publicity. It is an undoubted fact that only the successes of the unqualified bonesetter are recorded; their failures remain hidden. The patient often feels that he has been done and has been induced to waste money; but he says nothing of the incident to his friends and often conceals it later when he visits a surgeon. We all meet with these case of failure of the bonesetters; I could recount very many. In some cases there is more than a failure; the patient is made worse. The bonesetter is not necessarily greatly to be blamed. Surgery of all sorts is not an exact science; accurate diagnosis is difficult, and in cases treated by manipulation it is specially so, because we can often only guess at the exact lesion present. Most of us have made the mistake of diagnosing a joint which is suffering from the results of trauma as tuberculous, or a tuberculous joint as traumatic in origin. Moreover, the responsibility of the surgeon is greater than is that of the unqualified man. However experienced he is in manipulative methods he is perhaps rather less inclined to take a risk. Judgment is particularly difficult in treating stiff joints which have resulted from a non tuberculous arthritis. We know that if the arthritis is still active manipulation will almost certainly be a mistake, whereas if it is quiet, manipulation will in certain cases improve movement and diminish pain, but it is difficult to decide the exact stage at which manipulation is advisable. Hence it arises that to attain a regular success in the use of manipulation a large and wide experience in the treatment of disabilities of the bones, joints, and muscles is required. This is to my mind a very strong argument in favour of specialism in surgery. I believe that it is only by giving up certain large sections of surgery—e.g., abdominal and thoracic operations—that a surgeon is able to devote enough time to the treatment of bone and joint conditions to gain a detailed experience in them and thus to be able to judge of the best methods of treatment.

It is quite untrue to say that manipulative methods are not used by the medical profession. I can claim that I personally have used them since I first took up my specialty, and in my school I have followed Paget, Marsh, and Walsham, whose names should be honoured in this branch of surgery. I included a lecture on manipulative methods in my first course of lectures in the medical school and have never ceased to teach upon the subject. The mistake is to think that a surgeon whose chief interest lies in abdominal work is experienced in the whole of surgery. A surgeon who practically never sees or treats a sprain is naturally inexperienced in dealing with the late disability which results from one. The surgical profession is just as capable of carrying out manipulative methods and just as successful as is the unqualified practitioner. I would venture to say that if a strict comparison could be made it would be found that the surgeon, because of his experience of other methods, is the more successful of the two.

### *Indications for Treatment.*

Coming to details of treatment, time will only permit me to give a few examples. Simple traumatic adhesions around joints naturally come to one's mind first. The shoulder, in which rotation is most often restricted, the wrist (flexion), the knee (flexion), and the ankle (plantar flexion and inversion), serve as good examples. In all these the history of onset, the absence of evidence of active arthritis, a careful investigation of exactly which movement is restricted or painful, and an X ray examination are necessary preliminaries.

I have come more and more to the conclusion that careful X ray examination is essential before manipulation. I have had the misfortune to manipulate a tuberculous tarsus even after such an investigation had been declared negative, and I have narrowly escaped manipulating another case in which an X ray showed a very small tuberculous focus in the external malleolus. On the other hand, I have cured by manipulation a number of cases of disability of the ankle, which had been treated for as much as a year as being tuberculous. Ossification in the muscles or in the joint capsule is another discovery which should negative manipulation.

Some years ago I treated a man who, following a football injury, had his knee manipulated four times, twice by a medical man and twice by a bonesetter. Each time the knee became stiffer, until, when I saw him six months after the injury, the joint was perfectly stiff, and an X ray showed large plaques of bone in the vastus internus and in the inner side of the capsule. Resting the joint for a year on a splint restored mobility. I have since seen a second case of ossification in the capsule of the knee-joint, manipulated by the same bonesetter, again with the result that the knee was rendered much worse.

In manipulating a joint for adhesions it is necessary beforehand to determine exactly what movement is restricted or painful. Thus, I have seen a painful hip in which internal rotation in the flexed position was the movement restricted; and knees which require external rotation in full flexion and ankles which require plantar flexion and inversion are common.

Derangements of joints due to damage and displacement of an intra articular meniscus constitute perhaps the most important group of cases in which manipulation is practised. Such a derangement may occur in the temporo-mandibular joint.

I saw some time ago a young woman who awoke one morning and found that she could not open her mouth. There was much pain in the left temporo-mandibular joint and the chin was deviated slightly to the left. After investigation of the teeth and jaw by an X ray an anæsthetic was administered and the jaw opened with a gag whilst the chin was lifted and the angle of the jaw brought forward. A loud snap occurred, and the jaw opened. On recovery from the anæsthetic it was found that full movement was present.

### *The Knee and Foot.*

We all practise manipulation for derangement of the knee. In a clear case of locking of the joint resulting from injury to a semilunar cartilage with displacement occurring for the first time, I consider that such manipulation is the correct treatment. Often the disability will not recur. But this is only one of at least 12 possible causes of derangement, and in many cases the exact diagnosis is difficult. Manipulation will also cure cases of adhesions, of nipping of a synovial fringe, and some cases of partial locking due to an incomplete marginal tear of a cartilage, probably by completing the tear and displacing the cartilage into the intercondylar notch.

But manipulation cannot be expected to cure loose bodies, injuries of the crucial ligaments, cysts of the synovial membrane, or recurrent dislocation of the patella. Nor will it cure a complete bucket-handle split of the cartilage with recurrent displacement and locking. Accurate diagnosis of the exact lesion present is necessary, and it is to be feared that it is often not made. Diagnosis can only be improved by keeping very careful records of the history and signs and comparing them with operation findings.

A further point requires emphasis. At the present time an exploration of the knee-joint carried out by a competent and experienced operator is a perfectly safe proceeding. It is, in my opinion, often safer than a violent manipulation carried out in the dark with an incomplete preliminary diagnosis. Moreover, it promises a certain cure if a definite lesion is found, and this cannot be said of a manipulation. Therefore, whilst I believe that there are many cases in which we ought to manipulate and in which we may reasonably expect a cure by this method, I maintain that in many operation is essential, and in many others operation is the safest method. Failures after manipulation are extremely common, although they do not obtain publicity. Almost every case of derangement of the knee upon which I operate has been previously subjected to manipulation. I have operated upon as many as three in one week in which recurrence of symptoms had occurred after a bonesetter's manipulation.

I must say one word about the foot, which is responsible for many of the successes of bonesetters. Owing to the nature and fitting of our shoes the movements of the foot, and particularly of the toes, are habitually cramped, and the intrinsic muscles go out of action. It is particularly so in women, because they favour a short shoe and a high heel, often so cut as to throw the whole weight on to the forepart of the foot. The result is the loss of the metatarsal arch with clawing of the toes, which become hyperextended at the metatarso-phalangeal joints and flexed at the distal joints. The bonesetter announces that the toes are dislocated, and by manipulating them restores their mobility and gives comfort to the patient. It was formerly my practice to manipulate many of these cases under an anæsthetic and with great success. I have found, however, that with due training a good masseuse can cure this condition easily in a few treatments. The work of the massage profession, which was for long stereotyped on Swedish lines, has improved enormously during recent years as the result of close coöperation with the surgical profession. This is particularly true of the treatment of injuries. In fact, very often a good masseuse knows more of the practical treatment of injuries than the medical man. The student and the house surgeon learn far too little of this branch of treatment and gain too little experience in it. If we wish to avoid the reproach that the medical profession pays no attention to manipulative surgery, we must find room for a greater amount of teaching, and for better teaching, of this branch of surgery. The material is there; the methods are used and practised; the men are there to teach, if they are only given an opportunity.

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LONDON CLINICAL SOCIETY.—The inaugural meeting of this new medical society will be held on Thursday, Feb. 18th, at the London Temperance Hospital, Hampstead-road, N.W., when Sir W. Arbuthnot Lane will give an address entitled Is Civilisation a Failure? All medical men and women will be welcome at this meeting. The society has been founded mainly with the object of bringing together the medical men and women resident in the north, north-west, and west-central districts of London, but membership is open to all registered medical men and women. The annual subscription is at present fixed at 5s., with an entrance fee of the same amount. The following are the officers of the society: President, Mr. Herbert J. Paterson; vice-presidents, Dr. Soltau Fenwick and Dr. A. J. Clarke; hon. treasurer, Dr. E. A. Gregg; hon. secretary, Dr. Philip Figdor, 150, Harley-street, W. 1, from whom further particulars can be obtained.

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# A STUDY OF THE EFFECT OF PASTEURISATION ON THE INFECTIVITY OF THE MILK OF TUBERCULOUS COWS.

BY R. G. WHITE, M.B. GLASG.

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THE literature on the subject of the viability of the tubercle bacillus, when acted upon by heat at various temperatures and for various times, is full of contradictory statements, and this is especially the case in connexion with the vexed question of the effect of pasteurisation on the infectivity of tubercle-infected milk. The literature for the period from 1882 to 1907 on so-called death-point determinations of tubercle bacilli is summarised by Rosenau (1908), and from his own work on the subject, experimenting with milk heavily infected with virulent cultures, he arrived at the following conclusion:—

> "From these experiments it is evident that tubercle bacilli in milk lose their infective properties for guinea-pigs when heated to 60° C. and maintained at that temperature for 20 minutes, or to 65° C. for a much shorter time."

In the course of a controversy on this subject in the German literature (1908–10) Van der Sluis (1909) summarised the results of investigations up to the year 1909, and agreed with de Jong (1908) that one hour at 80° C. was necessary to kill tubercle bacilli in milk; this also was the opinion of Basenau (1909). In these experiments both naturally and artificially infected milks were used. Forster (1909, 1910) criticised this work and came to the conclusion that tubercle-infected milk when heated to a temperature of 65° C.–66° C. and held at this temperature for 15 minutes was no longer capable of giving rise to tuberculous infection in guinea-pigs. As a result of investigations carried out in America, the U.S. Department of Agriculture since 1910 has recommended that milk be heated to 145° F. and held for 30 minutes.

A table giving the results of various inquiries on this subject appears in a report by Delépine (1914) to the Local Government Board. Campbell Brown (1923), as the result of his own investigations, agrees with the results of the majority of the various workers quoted in this table which he also reproduces. He found that a temperature of 60° C. and a period of "holding" of 20 minutes was sufficient to prevent milk infected with laboratory-grown cultures of tubercle bacilli from infecting guinea-pigs when inoculated subcutaneously.

### *Object of Present Inquiry.*

The object of this inquiry was to determine whether or not the milk of tuberculous cows is rendered non-infectious for guinea-pigs when the milk is heated to 145° F. (approx. 62·5° C.) and held at this temperature for a period of 30 minutes—the milk being afterwards rapidly cooled. The temperature (145° F.) and the time (30 minutes) had been chosen as being the limits which should not be exceeded if the nutritive qualities of the milk were not to be materially altered, and were in accordance with the findings of Rosenau and the recommendations made by the American Government for the commercial pasteurisation of milk. Objection has been taken to the use of artificially infected milk in such tests as those carried out by Rosenau, and one of the main objects of the present inquiry was to carry out tests with naturally infected milk.

### *Nature and Extent of Infection of Milk Used.*

Great difficulty was experienced in obtaining a suitable cow for the purposes of the tests, so that the first four tests were carried out with artificially infected milk. The first test was made with milk to which had been added a weighed quantity of a laboratory-grown culture of tubercle bacilli. The strain was kindly supplied by Dr. Schütze, of the Lister Institute, who had recently recovered it from a monkey dead of the infection. The culture was the second subculture after separation of the organism, and was highly virulent for guinea-pigs. This test was carried out in test-tubes (eight) each containing 4·5 c.cm. of infected milk; these formed a series of 1 in 10 successive dilutions containing approximately from 2500 million T.B. in the first tube to 25 T.B. in the last tube of the series. For the second test 15 mg. of two stock laboratory strains of T.B. were used to infect 1 litre of milk. These strains, both bovine, were kindly supplied by Dr. St. John Brooks from the National Collection. In this test the milk contained approximately 15 million T.B. per c.cm.

In order to simulate more closely the conditions as they exist in naturally infected milk, for the third and fourth tests, the milk to be tested was emulsified with ground-up caseous matter and glands from guinea-pigs infected with milk from the first of the two experimental cows used in connexion with the tests. The artificially infected milk for these two tests (Nos. 3 and 4) was found by inoculation into guinea-pigs to contain at least 10,000 infective T.B. per c.cm. The remaining tests were carried out with naturally infected cow's milk.

For these experiments the first cow obtained, although showing distinct evidences of tuberculous mastitis and giving a positive tuberculin reaction, yielded a milk which on microscopical examination of the centrifuged deposit and cream showed the presence of acid fast bacilli on two only out of many examinations, and after prolonged search. In order to obtain some idea of the extent of the infectivity of the milk, daily tests were carried out for a period of a week, guinea-pigs being inoculated with graded dilutions of each day's yield of milk, and the result was practically constant—viz., 0·1 c.cm. gave a positive and 0·01 c.cm. an invariably negative result. Although a more heavily infected milk would have been desirable, still, owing to the difficulties which had been experienced in obtaining a suitable cow, it was decided to proceed with the tests. Shortly afterwards, however, the secretion of milk stopped and the cow had to be slaughtered. The tissues of guinea-pigs which had been infected with the milk of this cow were used in two of the tests (Nos. 3 and 4).

Ultimately a second cow was obtained; this cow also showed clinical signs of tuberculous mastitis and gave a positive tuberculin reaction, and on microscopical examination of the centrifuged milk acid-fast bacilli were constantly found. Inoculation of guinea-pigs with dilutions of the milk gave a positive result with 0·0001 c.cm. and a negative with 0·00001 c.cm. The remaining tests were carried out with the milk of this cow—the milk containing as a minimum 10,000 infective doses of tubercle bacilli per c.cm. In order to allow for any variation in the number of tubercle bacilli passed daily in the milk, the litre of milk to be tested was usually taken from a mixture of more than one day's yield of milk. For two of the tests, in order to obtain a still more heavily infected milk, daily samples of the cow's milk (2 pints) were centrifuged on arrival at the laboratory, and the cream and deposit separated and stored in the cold room. For one of these tests (No. 9) the cream and deposit of seven days' samples were emulsified in a mortar and made up to a litre with the separated milk—the resulting emulsion being used for the test. For the other test (No. 10) six days' samples were similarly treated. In the latter case guinea-pigs were inoculated with successive 1 in 10 dilutions from 0·1 to 0·000001 c.cm. and all were found to be infected so that the milk in this case contained at least 1 million infective doses of tubercle bacilli per c.cm.

### *Method of Pasteurisation: Technique Employed.*

As regards the details of the method of pasteurisation, all the tests with the exception of the first were carried out on the same lines:—

After taking samples, for purposes of control, of the milk to be tested, 1 litre of the milk was poured into an earthenware pot. The type of pot used was a domestic cooking vessel bought in one of the larger stores and labelled "The Gourmet Boil'a, Challis patent No. 7"; it is slightly raised on three legs and the wall is about a quarter of an inch thick. This pot containing the milk to be tested was placed in a pan of water at about 80° C., and by means of a ring burner the water was kept near the boiling-point in order to raise the milk to the desired temperature (62·5° C.) as quickly as possible. The hot-water pan was covered with a lid through holes in which passed a mechanical stirrer and two thermometers—the stirrer and one of the thermometers passed into the milk and the other thermometer into the water in the outer chamber. To allow of the passage of the stirrer and thermometer into the milk a tin lid pierced with two holes replaced the earthenware lid supplied with the Gourmet Boil'a. During the heating the milk was constantly but gently stirred. The time taken to raise the milk to 62·5° C. was about eight minutes. As soon as this temperature was reached the Gourmet Boil'a was removed and placed in a constant temperature copper boiler—regulated at 62·5° C. By means of a similar arrangement to that used in the earlier or "pre-heating" stage, the milk was kept in gentle motion and with the aid of two thermometers the temperature of the milk in the container and the water in the copper boiler could be read off. After 30 minutes "holding" at the temperature of 62·5° C. the milk container was removed and rapidly cooled to about 30° C. by placing it in a bucket of ice and water, the stirring at this stage being carried out by hand.

In the first test the dilutions of infected milk in test-tubes were heated rapidly in an ordinary water bath to 62·5° C. and maintained at this temperature for 30 minutes. In this test the milk was not mechanically stirred. Any variation in the general method of carrying out the test as, for example, in test No. 2 where the milk was kept in motion by a current of air, is given in the detailed description of the various tests.

*Manipulation of Pasteurised Milk.*—In order to test as large a volume as possible of the pasteurised milk, the whole litre of milk after pasteurisation was spun in a high-speed centrifuge and the cream and deposit were used for inoculation.

### *Technique of Animal Tests.*

For the results of the tests reliance was placed entirely upon animal experiments.

Guinea-pigs were inoculated subcutaneously into the fold of the groin and all surviving animals were allowed to remain for periods up to three months before being killed and examined. With one exception, a series of control animals was inoculated in every test, four or five guinea-pigs receiving respectively 1·0 c.cm. and successive 1 in 10 dilutions of the milk, from 0·1 c.cm. to 0·001 c.cm. or 0·0001 c.cm. In the remaining tests, which were each carried out with 1 litre of milk, four or five guinea-pigs were inoculated, two with 2·0 c.cm. to 4·0 c.cm. of the cream emulsified in a small quantity of the separated milk, and the remainder with all the deposit divided amongst them. The total deposit was made up to 6·0 c.cm. with separated milk and guinea-pigs were inoculated—either three guinea-pigs with 1·0, 2·0, and 3·0 c.cm. respectively, or two guinea-pigs with 3·0 c.cm. each of the emulsified deposit.

In the earlier tests cultures on glucose-agar and Dorset medium were made but, owing to the invariable presence of contaminating organisms, the use of cultures was discontinued. Autopsies were made on all the animals, and where there appeared to be any possibility of doubt, a second guinea-pig was inoculated from these, as in the case of certain animals with abscesses showing the presence of acid-fast bacilli of the butter bacillus type. As a general rule, the post-mortem findings were absolutely definite, the animals inoculated with the raw milk were either dead by the sixth week or were killed at this date, and the post-mortem findings were typical. In the case of the animals inoculated with the cream and deposit of the milk after pasteurisation (with the exception of one positive finding, which is dealt with later), and the guinea-pigs which were infected with a butter bacillus, these animals had grown considerably and had put on fat, so that a post-mortem examination might not have been considered necessary. It was, however, carried out in every case.

### *Details of Tests.*

SERIES 1.—*Experiments with milk infected with T.B. cultures.*

TEST 1.—Carried out in test-tubes: 5 mg. of a glycerine-agar culture of a virulent strain of tubercle bacilli emulsified in 1·0 c.cm. saline and a 1 in 10 dilution made by adding it to 9 c.cm. milk. From this successive decimal dilutions were made, and by halving the contents of each tube two series of dilutions were obtained—each series consisting of eight tubes containing 1·5 c.cm. of milk in each tube and with approximately 2500 million T.B. in the first and 25 T.B. in the last tube. One set of these tubes was heated as described and the other set retained for purposes of control.

(1) *Control animals*, inoculated with milk before pasteurisation. Four guinea-pigs inoculated with 3·0 c.cm. of the contents of the first, fourth, sixth, and seventh of the series of unheated tubes (the last and weakest of these containing approximately 160 T.B.).

*Result.*—All ultimately found to be infected.

(2) *Test animals*, inoculated with milk after pasteurisation. Eight guinea-pigs inoculated with 3·0 c.cm. of the contents of each of the heated tubes (the highest of these doses containing approximately 1600 million T.B.).

*Result.*—All proved to be non-infected.

TEST 2.—Carried out in the improvised pasteurisation plant described—1 litre of milk used for the test; stirring carried out by passing a current of air through the milk; with this exception procedure as described. Subcultures on Dorset medium of two bovine strains of tubercle bacilli used to infect 1 litre of milk—15 mg. of culture being used.

(1) *Control animals*, inoculated with milk before pasteurisation. *A series of successive 1 in 10 dilutions of* the infected milk made, and of these five dilutions (1 c.cm. of each) inoculated into guinea-pigs (the last and weakest of these containing approximately 1 million T.B.).

*Result.*—All in due course found to be infected.

(2) *Test animals*, inoculated with milk after pasteurisation. Milk centrifuged and cream and deposit separated; 2 c.cm. and 5 c.cm. of the cream inoculated into two guinea-pigs and all the deposit—divided into 1/6th, 2/6th, and 3/6th, inoculated into three guinea-pigs.

*Result.*—All animals non-infected.

SERIES 2.—*Experiments with milk infected with tuberculous glands.* (Proved by animal inoculation—see below—to contain at least 10,000 infective T.B. per c.cm.)

TEST 3.—1 litre of milk infected with the ground-up glands (caseous lymphatic glands and spleen) of guinea-pigs infected by subcutaneous inoculation of the milk of first experimental cow. The guinea-pigs showed extensive tuberculous infection. The glands were ground up in a mortar and an emulsion *made with part of the cream* separated from the litre of milk with which the experiment was to be carried out. Emulsion made as homogeneous as possible in large mortar and remainder of milk added and again emulsified. The artificially infected milk was then poured into the Gourmet Boil'a through a muslin cloth, similar to that used commercially for straining milk, to remove the grosser fragments of tissue.

(1) *Control animals*, inoculated with milk before pasteurisation; 1·0 c.cm. and dilutions of 0·1, 0·01, 0·001, and 0·0001 c.cm. of the infected milk inoculated subcutaneously into guinea-pigs.

*Result.*—All in due course showed marked tuberculous infection.

(2) *Test animals*, inoculated with milk after pasteurisation. Five guinea-pigs inoculated respectively with 2·0 c.cm. and 4·0 c.cm. of the cream and 1/6th, 2/6th, and 3/6th of whole deposit of the centrifuged *milk after passing through the* pasteurisation process.

*Result.*—Guinea-pig receiving 2/6th of the deposit dead of sepsis two days after inoculation, remaining animals killed three months after date of inoculation and showed no signs of tuberculous infection.

*TEST 4.—1 litre of milk* infected with ground-up glands of tuberculous guinea-pigs and procedure as in former test.

(1) *Control animals*, inoculated with milk before pasteurisation; 1·0 c.cm. and decimal dilutions to 0·0001 c.cm. inoculated into guinea-pigs.

*Result.*—All in due course showed typical tuberculous lesions.

(2) *Test animals*, inoculated with milk after pasteurisation. After centrifugalisation of *pasteurised* milk *two guinea-pigs* each inoculated with 5·0 c.cm. of the cream.

*Result.*—One dead of sepsis, the other killed and examined *65 days after inoculation.* No signs of tuberculous infection found.

The deposit of 5/6th of the litre of milk (1/6th was lost by the breaking of one of the centrifuge pots) inoculated in the proportion of 1/6th, 2/6th, and 3/6th *into* three guinea-pigs; these animals examined 65 days after inoculation.

*Result.*—Found to be non-infected.

TEST 1 (*a*).—Carried out in order to get some idea of the numbers of infective tubercle bacilli left in the milk after the first stage—i.e., after it had been raised to the temperature of 62·5° C. Samples were taken of the milk as soon as the container was removed from the pre-heater and placed in *the holder, the milk having been at a temperature of* 62·5° C. for less than five minutes—possibly only for three minutes. Five guinea-pigs were inoculated respectively with 1·0 c.cm. and decimal dilutions to 0·0001 c.cm.

*Result.*—All in due course gave a negative result.

SERIES 3.—*Experiments with naturally infected milk.*

TEST 5.—1 litre of milk from one day's yield of experimental cow used.

(1) *Control animals*, inoculated with milk before pasteurisation; 1·0 c.cm. and decimal dilutions to 0·0001 c.cm. of unheated milk inoculated into guinea-pigs.

*Result.*—After six weeks all proved to be infected.

(2) *Test animals*, inoculated with milk after pasteurisation. Five guinea-pigs inoculated—two with cream and three with the deposit divided amongst them as in former test.

*Result.*—Four animals after two and a half months gave a negative result and the fifth, which had received 4·0 c.cm. of the cream, died of sepsis.

TEST 6.—1 litre of a mixed sample of four days' yield *of the experimental cow's milk used.*

(1) *Control*, before pasteurisation. Five guinea-pigs inoculated with 1·0 c.cm. and decimal dilutions to 0·0001 c.cm. of the unheated milk.

*Result.*—After six weeks all proved to be infected.

(2) *Test, after pasteurisation. Five guinea-pigs* inoculated —two with cream and three with the deposit divided amongst them.

*Result.*—Four animals after 62 days showed no evidence of tuberculous infection; the fifth, which had received 4·0 c.cm. of cream, died of sepsis.

TEST 7.—1 litre of mixed sample of five days' yield of the experimental cow's milk used.

(1) *Control*, before pasteurisation. Four guinea-pigs inoculated respectively with 1·0 c.cm. and successive decimal dilutions to 0·001 c.cm. of the unheated milk.

*Result.*—After five weeks all proved to be infected.

(2) *Test*, after pasteurisation. Four guinea-pigs inoculated —two each with 3·0 c.cm. of the cream *and two each* with half of the deposit.

*Result.*—Of the former, one gave a negative result and *the other died of sepsis four days after inoculation.* Of the latter two, those which received deposit, one died five weeks after inoculation and showed distinct signs of tuberculosis, the other was killed and examined two and a half months after inoculation and showed no signs of tuberculous infection, the animal having increased in weight and put on fat.

TEST 8.—1 litre of mixed sample of six days' yield of the experimental cow's milk used.

(1) *Control*, before pasteurisation. Four guinea-pigs inoculated respectively with 1·0 c.cm. and successive decimal dilutions to 0·001 c.cm. of the unheated milk.

*Result.*—After five weeks one died of advanced tuberculosis, and the other three were killed and examined and found to be infected.

(2) *Test*, after pasteurisation. Four guinea-pigs inoculated—two each with 3·0 c.cm. of the cream and two each with half of the deposit.

*Result.*—No signs of tuberculosis were found in these pigs when killed and examined two and a half months later.

TEST 9.—1 litre of mixed sample of seven days' yield of the experimental cow's milk used.

*(1) Control*, no control *animals inoculated.*

(2) *Test*, after pasteurisation. Four guinea-pigs inoculated —two each with 3·0 c.cm. of the cream and two each with half of the deposit.

*Result.*—Three months after inoculation two of former and one of the latter killed and examined and showed no signs of tuberculous infection; the fourth animal died of sepsis.

TEST 10.—2 pints of each day's yield of milk *for* six days centrifuged; cream and deposit separated and kept in the ice-room. The collected samples of cream and deposit mixed for the test and made up to 1 litre with the *separated* milk.

(1) *Control*, before pasteurisation. Five guinea-pigs inoculated, each with 1·0 c.cm. of successive decimal dilutions representing from 0·01 c.cm. to 0·000001 c.cm. of the original milk.

*Result.*—All in the course of four to six weeks gave a positive result.

(2) *Test*, after pasteurisation. Four guinea-pigs inoculated—two each with 3·0 c.cm. of the cream and two each with half of the deposit.

*Result.*—The two former were killed three months after inoculation and gave a negative result. The two latter died of sepsis three days after inoculation.

TESTS 11, 11 (*a*), 11 (*b*).—For these tests three separate litres of a mixed sample of five days' yield of the experimental cow's milk used—1 litre for each test. The three tests were carried out as before with the exception that the period of "holding" was varied as follows:—

11 .. .. Milk held for 30 min. at 62·5° C.
11 (*a*) .. .. " " 20 " "
11 (*b*) .. .. " " 10 " "

(1) *Control*, before pasteurisation. Five guinea-pigs inoculated, each with 1·0 c.cm. of successive decimal dilutions representing 0·01 c.cm. to 0·000001 c.cm. of the mixed milk.

*Result.*—The first three gave a positive result, whilst those inoculated with dilutions of 0·00001 c.cm. and 0·000001 c.cm. were not infected.

(2) *Test* 11—i.e., after milk was held for 30 minutes. Four guinea-pigs inoculated—two each with 3·0 c.cm. of the cream and two each with half of the deposit.

*Result.*—No evidences of any tuberculous infection found in these animals.

*Test* 11 (*a*)—i.e., after milk was held for 20 minutes. Four guinea-pigs inoculated—two each with 3·0 c.cm. of the cream and two each with half of the deposit.

*Result.*—The two former gave a negative result whilst the two latter died of sepsis.

*Test* 11 (*b*)—i.e., after milk was held for 10 minutes. Four guinea-pigs inoculated—two each with 3·0 c.cm. of the cream and two each with half of the deposit.

*Result.*—The two former gave a negative result, whilst the latter were both infected with an acid fast organism of the butter bacillus type; neither these animals nor the guinea-pigs inoculated with material from them gave any signs of a tuberculous infection.

### *Summary of Results.*

All control animals, inoculated with dilutions of the unheated milk, gave a positive result, except where the dilutions were taken to a point beyond the infective dose. The following table gives the results of the test guinea-pigs—those which had been inoculated with the milk after it had been subjected to the pasteurisation process described either as in the first test in the form of dilutions of the infected milk, or as in the other tests with the cream and deposit of the centrifuged milk.

Series I includes tests on artificially infected milk (T.B. cultures).

Series II. includes tests on artificially infected milk (caseous lymphatic glands, &c.).

Series III includes tests on naturally infected milk (experimental cow's milk).

Series IV. includes tests where milk was held for periods of less than 30 minutes).

| Series. | Test. | G.P. inoculated and total. | Negative. | Positive. | Died of other infections. | Series. | Test | G.P. inoculated and total. | Negative. | Positive. | Died of other infections. |
|---|---|---|---|---|---|---|---|---|---|---|---|
| I. | 1 | 8 | 8 | — | — | III. (cont.) | 8 | 4 | 4 | — | — |
| | 2 | 5 – 13 | 5 | — | — | | 9 | 4 | 4 | — | — |
| | | | | | | | 10 | 4 | 2 | — | 2 |
| II. | 3 | 5 | 5 | — | — | | 11 | 4 – 30 | 4 | — | — |
| | 4 | 5 – 10 | 4 | — | 1 | | | | | | |
| | | | | | | IV. | 4 (*a*) | 5 | 5 | — | — |
| III. | 5 | 5 | 4 | — | 1 | | 11 (*a*) | 4 | 2 | — | 2 |
| | 6 | 5 | 4 | — | 1 | | 11 (*b*) | 4 – 13 | 3 | — | 1 |
| | 7 | 4 | 2 | 1 | 1 | | | | | | |

It will be seen that out of a total number of 53 guinea-pigs inoculated with artificially infected and naturally infected milk, after it had been heated as described to 62·5° C. and held at this temperature for 30 minutes, six died either as the result of sepsis or from infection with an organism of the butter bacillus type. Of the remaining 47 animals, 46 gave a negative result and one showed a definite tuberculous infection. With regard to this one positive result it is to be noted that the whole deposit of the litre of milk, after centrifugalisation, was inoculated into two guinea-pigs—each receiving one-half of the deposit. As the other animal of the pair showed absolutely no signs of infection and the one referred to was unmistakably positive—the possibility of an accident cannot be overlooked. Every care was taken with regard to using separate pipettes, syringes, &c., also with the labelling and care of the guinea-pigs, but as each test took about three hours to carry out and as each detail as to temperature, &c., had to be personally controlled, it is possible that an accident may have occurred. This result, which proved to be the one exception in the tests, I am therefore inclined to interpret in this light.

With regard to the three special tests (Series IV.) these were carried out as a matter of interest and were apart from the main line of investigation. It was considered that the sterilisation of the milk so far as tubercle was concerned would no doubt follow the same laws as are found to hold in the case of disinfection with chemical compounds, and that the death point of the organism would follow a logarithmic curve when plotted out as a function of time and temperature. A detailed investigation on these lines was beyond the scope of this inquiry, but by keeping the temperature constant it was hoped that varying the time might give some indication of the rate of change in the milk from an infective to a non-infective condition. The tests carried out were too incomplete to enable definite conclusions to be drawn, but it is worthy of note that in the case of the first of the special tests (Test No. 4 (*a*)), where the milk was tested shortly after it had been raised to 62·5° C. (with less than five, possibly three, minutes holding at this temperature), five guinea-pigs inoculated respectively with 1·0 c.cm. and successive decimal dilutions to 0·0001 c.cm. all gave a negative result. This milk before pasteurisation was shown by control inoculations into a series of guinea-pigs to contain a minimum of 10,000 infective doses of T.B. per c.cm. Unfortunately, larger doses than 1·0 c.cm. were not inoculated.

As to the other two special tests (Nos. 11 (*a*) and 11 (*b*)) in which the milk (1 litre) was heated to 62·5° C. but held for shorter periods than 30 minutes—viz., 20 minutes in the case of the first test and 10 minutes in the second—the results were complicated by the presence of extraneous organisms. It is of interest, however, to note that no evidences of a tuberculous infection were found in the two surviving guinea-pigs out of four inoculated in the first nor in three out of four inoculated in the second of these tests.

### *Conclusions.*

Experiments have been carried out with naturally infected milk from cows with tuberculous udders, with milk contaminated with cultures of tubercle bacilli, and with milk to which ground-up caseous tuberculous glands have been added. The method employed was to raise the temperature of the milk to 62·5° C. and to keep it at this temperature for 30 minutes. The results obtained by inoculating such pasteurised milk into guinea-pigs have shown clearly that pasteurisation carried out under these conditions ensures a non-infective milk so far as *B. tuberculosis* is concerned.

I am greatly indebted to Prof. C. J. Martin and Prof. J. C. G. Ledingham for their advice and suggestions, and to Mrs. M. M. Barratt for much valuable help.

*References.*—Basenau F.: Cent. f. Bakt., Abt. I., Orig., 1909, lii., 61. Brown, F. W. Campbell: THE LANCET, 1925, ii., 317. Delépine, A. S.: Reports to Loc. Gov. Board (New Series), 1911, No. 97. de Jong, D. A.: Cent. f. Bakt., Abt. I., Orig., 1908, xlviii., 670. Forster, J.: Ibid., ii., 417; 1910, liv., 73. Rosenau, M. J. Hygienic Laboratory Bulletins, Nos. 42 and 56. van der Sluis, Y.: Cent. f. Bakt., Abt. I., Orig., 1909, l., 378.

### A CASE OF

# PERNICIOUS ANÆMIA OF APLASTIC TYPE,

### WITH PHAGOCYTOSIS OF ERYTHROCYTES.

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In this case the clinical findings and blood pictures were similar to those found in the aplastic type of pernicious anæmia occurring among munition workers during the late war. It is a significant fact that the patient was by trade a "film varnisher"—an occupation involving the continuous use of some form of "dope"—but we have been unable to trace any previous cases of disease among such workers or to find any evidence for the occupation being the primary cause of the disease.

The patient, A. C., aged 51, was admitted to the Middlesex Hospital under Dr. C. E. Lakin in March, 1924. He complained of soreness of tongue and mouth, and chronic diarrhœa with abdominal pain, all of about three months duration. He had been compelled to cease work a month before admission on account of lassitude, dizziness, and pains in the lower limbs. He had never been abroad.

*Condition on Examination*—The patient was emaciated and anæmic; teeth very decayed, and tongue, mouth, and fauces painful and ulcerated. The tongue showed numerous eroded patches and superficial cracks, whilst margins of gums were ulcerated and exuded a foul discharge. The whole condition of the mouth was suggestive of sprue, but no other sign of this disease was found. The circulatory, respiratory, and urinary systems were normal.

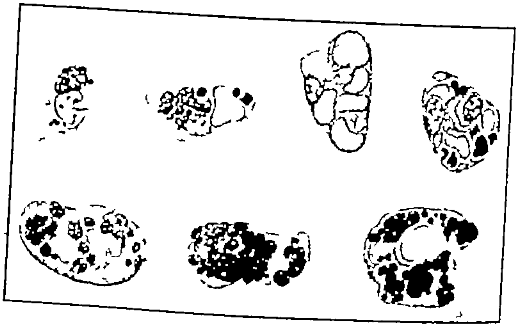
*Condition on Admission*—The temperature was subnormal, but afterwards remained slightly raised. The diarrhœa was relieved by rectal wash outs with a solution of borax. The mouth condition was treated by irrigation and mouth washes, the teeth being cleaned up with a solution of citric acid. Iron and arsenic were given intramuscularly and by the mouth. Four weeks after admission severe vomiting after food began. The patient became thinner and paler and died painlessly of asthenia ten weeks after admission, having been comatose during the last fortnight. Bacteriological examinations of the stools showed nothing abnormal. Examinations of the blood were made at weekly intervals. No nucleated forms of red corpuscles were ever found, but the films were notable for the large numbers of megalocytes present. The colour-index was usually over 1. The results are recorded in the table

*Blood Examinations.*

| Date in 1924 | Erythrocytes (in millions) | Hæmoglobin | Colour-index. | Leucocytes | Polymorphonuclears % | Lymphocytes % | Large mononuclears % | Eosinophiles % |
|---|---|---|---|---|---|---|---|---|
| 2/4 | 1,920 | 36 | 0·9 | 2,800 | 58 | 36 | 5 | 1 |
| 9/4 | 1,200 | 38 | 1·6 | 2,700 | 46 | 48 | 6 | 0 |
| 17/4 | 1,780 | 36 | 1·0 | 3,400 | 58 | 36·5 | 5·5 | 0 |
| 20/4 | 1,800 | 32 | 0·9 | 4,900 | 60 | 32 | 8 | 0 |
| 6/5 | 1,770 | 30 | 0·9 | 4,500 | 61·5 | 36·0 | 2·5 | 0 |
| 16/5 | 1,480 | 30 | 1·07 | 3,100 | 57·5 | 37·25 | 5·25 | 0 |
| 21/5 | 1,500 | 28 | 0·9 | — | — | — | — | — |
| 24/5 | 1,040 | 32 | 1·1 | 3,000 | 49·0 | 46·0 | 5·0 | 0 |

*Remarks*—April 2nd, 9th, 17th, 20th, May 6th, 16th Large numbers of megalocytes Platelets 20,000 per c.mm Few poikilocytes May 21st Megalocytes very numerous May 24th Platelets nil seen.

*Post mortem Examination*—The main post-mortem findings were syphilitic aortitis and a small dark fibrous spleen The liver gave a faint reaction for iron with potassium ferrocyanide and hydrochloric acid, the blue colour appearing after about three minutes. The diploë of skull and marrow of ribs and sternum were light yellow in colour The marrow of right femur was yellow and fatty throughout its en length except for an area occupying upper third of sh and extending slightly into the neck of the bone, which somewhat soft and creamy red in colour. Wasserma reaction, performed post mortem, positive. Several bl films and a section of blood clot were examined from po mortem material, but no nucleated forms of red cells w found. A section of liver showed that the cells contained quantity of iron pigment in the state of fine granules, b there was no destruction of liver tissue A section of t area of reddish marrow in the femur showed both leuc blastic and erythroblastic cells Myeloblasts and vario forms of myelocyte were present. All stages of developme of red blood-cell could be seen: megaloblasts with blui purple protoplasm, others more hæmoglobinised but st retaining the megaloblast nucleus, normoblasts, some large size, normal-sized red cells and megalocytes in fa numbers. In addition to above, and forming the mos striking feature of sections, were very numerous phagocyt cells. These were variable in size and shape, some spherical others oval or irregular, and most of them of large size. The pale staining reticular nucleus of these cells lay usually towards the periphery of the cell and was oval or kidney shaped; the protoplasm, faintly staining and often hardly visible, was, in the majority of cases, stuffed with red cells and pigment. Every form of red cell—megaloblasts, normoblasts, and mature cells—could be found within these phagocytes; they also occasionally contained leucocytes. The pigment, which was found exclusively within the phagocytes, was in the form of brownish granules ranging in size from fine particles up to half the size of a red cell. Sections stained for free iron, when viewed with the low power, showed blue spots scattered thickly over the field, with the one-twelfth objective these spots were seen to be phagocytes laden with blue iron containing granules of varying sizes corresponding to the brownish pigment granules. (See figure.) Coliform bacilli in clumps were evident in one or two places in the bone-marrow section.



Drawing of a series of phagocytes found in sections of the bone-marrow The upper four cells stained by Leishman's stain, the lower three stained to show the coarse granules of iron pigment

### *Phagocytosis of Red Cells.*

Phagocytosis of red cells by cells of the liver, spleen, lymph glands, and bone-marrow has frequently been described, and Aschoff [1] has drawn attention to the fact that it may sometimes become the predominant factor in blood destruction. Peabody and Broun [2] have found that a certain amount of phagocytosis of erythrocytes occurs in normal bone-marrow, and to a greater extent in a variety of pathological conditions, particularly cirrhosis of the liver, and infectious diseases such as typhoid, tuberculosis, and pneumonia, but in no disease have they found the phenomenon so marked as in the acute stage of pernicious anæmia, of which they examined ten cases. Their description of the latter is remarkable in that the phagocytes contained large numbers of red cells, but less pigment than the control cases. Turnbull's [3] findings in sections of the bone-marrow from a case of aplastic anæmia due to tri-nitro-toluene poisoning are very similar to our case.

The question naturally arises as to whether the anæmia is due to the phagocytosis or whether the phagocytosis is merely a removal of damaged cells and of pigment, both of which are the product of some other agent. The histological evidence indicates that the bone-marrow phagocyte ingests the red corpuscle, and that the pigment is formed from the hæmoglobin within the phagocyte. This is suggested, in our case, by the presence in the phagocytes of red cells—especially megaloblasts—which are apparently intact, and by the fact that the pigment was confined to the phagocytes. It is improbable that there would be such a complete phagocytosis of all pigment if this was originally formed outside the ingesting cells

*Significance of Megalocytes in Aplastic Anæmia.*

The blood counts of this case showed a severe anæmia with the high colour-index characteristic of the pernicious type, whilst the entire absence of nucleated forms of red cells indicated that the anæmia was what is commonly described as 'aplastic" Megalocytes were a notable feature in all blood films These cells, so characteristic of pernicious anæmia, are usually regarded as the special product of the bone-marrow when stimulated by a toxin, undoubtedly they serve a useful function in severe anæmia, for they are usually fully hæmoglobinised and capable of carrying a large quota of oxygen. Their origin is obscure, though it is conceivable that they are a close relation of the megaloblasts, if the normal evolution of the erythrocyte as demonstrated by Turnbull[4] be accepted Normally, the megaloblast is a cell with a reticular nucleus but with no hæmoglobin in its cytoplasm, and it becomes a normoblast by the condensation of its nucleus and cytoplasm. The young normoblast still possesses no hæmoglobin, but the acquisition of the latter substance by the normoblast coincides with the extrusion or disintegration of its nucleus and its conversion into a normal erythrocyte. Aschoff[5] states that megaloblasts are not found in normal marrow, but the evolutionary process, as described by him, is essentially the same as the above if one omits the first stage.

In severe anæmia the megaloblast is seen in the bone-marrow (and often in the peripheral circulation) as a hæmoglobinised cell, and there appears, therefore, to be a stimulus to an early and complete hæmoglobinisation of an immature red cell—a cell which normally contains no hæmoglobin. In parallel with the normal process, there should be a tendency for the cell to shed its nucleus coincident with its acquiring hæmoglobin. It seems reasonable to suggest, therefore, that megalocytes (which are frequently associated with hæmoglobinised megaloblasts) are non nucleated forms of megaloblasts and that they provide a short cut from the megaloblast to a hæmoglobinised non nucleated red cell in times of need.

*Condition of Bone-marrow in Severe Anæmia.*

The bone-marrow in cases of severe anæmia appears to react not only by producing large numbers of corpuscles to compensate for the destroyed cells, but also by hastening the hæmoglobinisation process, in an effort to provide cells of any kind so long as they are capable of carrying oxygen. In the ordinary plastic type of pernicious anæmia with the typical hyperplastic bone-marrow both these compensatory processes appear to be in action. In the classical case of aplastic anæmia described by Vaquez and Aubertin[6] both these processes were in abeyance, for no abnormal cells were found in the peripheral blood and there was no hyperplasia of the bone-marrow In the series of cases of aplastic anæmia recorded among munition workers during the late war,[7] in the series of cases collected by Dyke,[8] and in our case anisocytosis has always been noted, but with little or no hyperplasia of the bone-marrow In such cases, characterised clinically by an entire absence of remissions, the main compensatory mechanism appears to be the early hæmoglobinisation of such cells as are produced by the marrow Our case showed a slightly hyperplastic area of bone-marrow in the femur, which on section showed that the main erythroblastic activity was megaloblastic and megalocytic—a fact which supports the view expressed above on the origin, function and significance of the megalocyte. In Dyke's series of cases stress is laid on the demonstration of a bacterial infection of the bone-marrow; this was present in our case also we regard it as merely a terminal event in the course of the disease

Our thanks are due to Dr C E. Lakin for permission to publish this case and to Dr S L. Baker for his report (embodied in the text) on the bone-marrow section.

*References.*

1 Aschoff, L. Das retikulo-endotheliale System und seine Beziehungen zur Gallenfarbstoffbildung, Münch med. Wochenschr., 1922, lxix. 1352
2. Peabody, F W, and Broun, G O: Phagocytosis of Erythrocytes in Bone Marrow, with Special Reference to Pernicious Anæmia, Amer Jour of Path., March, 1925
3. Proc. Roy Soc. Med, March, 1917
4 Roy Soc. Med. Path. Section, March 1925
5 Aschoff Pathologische Anatomie 1923, ii. 106
6. Soc. Méd. des Hôpitaux de Paris, March, 1904.
7 Proc. Roy Soc Med., March, 1917
8 Dyke, S. C THE LANCET 1924, i., 31

## THE BIOCHEMICAL ACTION OF INTRAVENOUS ANTIMONY TARTRATE INJECTIONS.

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Antimony tartrate, either the potassium or sodium salt, is a simple inorganic compound of antimony with the tartrate acid radicle $(K(SbO)C_4H_4O_6)_2$, $H_2O$ It is readily soluble in water and other fluids, and when dissolved is not easily disintegrated. When injected into the blood stream in a concentration of 1 gr in 2 c.cm. of water* it has no action on the cellular constituents of the blood nor upon the endothelial lining of the vessels, and remains, apparently, in simple solution in the serum. It seems, however, to have a selective action on certain organs, tissues, and cells, and within a few minutes of reaching the general circulation it has commenced to exert its physiological effects

### (A) *Physiological Effects.*

Discomfort or pain in the chest and a dry cough mark its presence in the mucous membranes of the bronchioles, a feeling of constriction in the throat its effect on the laryngeal mucous membrane, nausea, sickness, colic—and later diarrhœa—its presence in the mucous membrane of the bowel, a desire to micturate its effect on the urinary system, and dizziness or headache its effect on the cerebrum. These are all striking results indicating rapid and early physiological action, and yet when contrasted with the immediate physiological effects of oral, hypodermic, or intramuscular administration of the drug they are insignificant. There is, however, one alarming biochemical action which may follow intravenous administration—viz., shock. This effect is apparently not due to an overdose in the ordinary accepted use of the term, but rather to individual susceptibility or possibly true *anaphylaxis* In such a case it may happen that an adult injected three times a week will, after a dose of 1½ gr, become clammy with perspiration and pale, will exhibit dilated pupils, sighing shallow respirations, general weakness, and painful extremities If the dose be repeated after two days these signs and symptoms recur; in fact, once having upset the patient's antimony tartrate equilibrium in this way he appears to remain hypersensitive.

A later physiological effect of intravenous antimony injections is shown by rheumatic pains in joints—sufficient to prevent sleep—and even paresis of muscles These rheumatic pains occur when the course is in full swing, come on some hours after an injection, and last for six or eight hours. They are repeated after the next injection if the dose is not reduced. Still later physiological effects of intravenous injections of antimony tartrate are certain skin phenomena, most conspicuous in Africans with brown (Arabs) or black (Negro) skins. The first of these manifestations is an immediate temporary flush around the site of the injection—well seen in the white skin of Europeans—and an exaggeration of any rash which may be present—e.g., psoriasis. Later a condition of "goose-skin" may occur. In the case of a negro to whom 60 gr. had been given over a period of three months a leucoderma followed, producing a de-pigmentation resembling "piebald" skin. Still later, with larger doses, the patient may experience fullness and pain in the hepatic region, and even jaundice may supervene.

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* One grain or 0·065 gramme of antimony tartrate in two cubic centimetres of water Throughout this paper the amount of the salt is given in grains and the amount of solvent in cubic centimetres.

Death has occasionally been known to result from intravenous injection of antimony. An unpublished case is known to the writers in which a single dose of 13 gr. given inadvertently, owing to a mistake in dispensing, proved fatal in 12 hours to a case of bilharzia. This case is referred to below.

The toxic effect of antimony salts on animals may be seen from Table I., in which the salts are arranged in order of toxicity. This table has been compiled from the work of Fargher and Gray.[1]

In Table II. it should be noted that the most toxic contains the smallest percentage of antimony and is the least soluble.

The symptoms and signs which follow prolonged intravenous injections of antimony tartrate appear to be typically allergic. The patient becomes hypersensitive and intolerant of small non-toxic doses which would have no ill effects on an individual previously uninoculated. The phenomenon of drug allergy is now well recognised and has been described in connexion with glucosides, alkaloids, essential oils, certain metals, halogens, and coal-tar derivatives (Kolmer[2]). In the majority of cases the most marked effect appears to be produced on the liver and kidneys.

Apart from these signs and symptoms of hypersensitivity after the intravenous injection of antimony tartrate, two therapeutic effects are known: (1) parasito-tropic and (2) organo-tropic (Ehrlich). The former is well recognised in the treatment of tropical disease. The latter, however, is not so generally recognised, and it was with a view to elucidating some of the problems connected with this organo-tropic effect that the following clinical and experimental investigations were made.

TABLE I.

| Name. | Formula. | Per cent. antimony. | M.L.D. per K. | Weight of antimony in M.L.D. | 100 parts water dissolve at 18° C. |
|---|---|---|---|---|---|
| 1. Ethylenediamine A.T. | $C_{10}H_{12}O_{14}N_2Sb_2H_2O$ | 37·0 | 0·005 | 1·85 | 4· |
| 2. Barium A.T. .. .. .. .. | $C_8H_8O_{14}Sb_2Ba, 3H_2O$ | 31·63 | 0·01 | 3·2 | 0·49 |
| 3. Potassium A.T. .. .. .. .. | $C_4H_4O_7SbK, \frac{1}{2} H_2O$ | 36·17 | 0·106 | 5·7 | 7 2 |
| 4. Sodium p-bromo-phenylstibinate .. .. | | 34·71 | 0·019 | 6·6 | — |
| 5. Ammonium A.T. .. .. .. .. | $C_4H_8O_7NSb, 1\frac{1}{2}H_2O$ | 36·51 | 0·02 | 7·4 | 66·0 |
| 6. Quinidine A.T. .. .. .. .. | $C_{24}H_{29}O_9N_2Sb, 4H_2O$ | 17·61 | 0·02 | 3·5 | 0·31 |
| 7. Aniline A.T. .. .. .. .. | $C_{10}H_{12}O_7NSb, H_2O$ | 18·5 | 0·02 | 6 0 | 18 5 |
| 8. Quinotoxin A.T. .. .. .. .. | $C_{24}H_{29}O_9N_2Sb, 1\frac{1}{2}H_2O$ | 18·85 | 0·023 | 4·0 | 25·0 |
| 9. Sodium A.T. .. .. .. .. | $C_4H_4O_7SbNa, \frac{1}{2}H_2O$ | 38·01 | 0·025 | 9·5 | 91·0 |
| 10. Hydroquinine A.T. .. .. .. .. | $C_{24}H_{31}O_9N_2Sb, 5H_2O$ | 17·11 | 0·03 | 5·1 | 17·11 |
| 11. Lithium A.T. .. .. .. .. | $C_4H_4O_7SbLi. 2\frac{1}{2}H_2O$ | 35·75 | 0·04 | 14·3 | 180·0 |
| 12. Butylamine A.T. .. .. .. .. | $C_8H_{16}O_7NSb, 2H_2O$ | 30·48 | 0·045 | 15·0 | 238·0 |
| 13. Glyoxaline A.T. .. .. .. .. | $C_7H_9O_7N_2Sb, 2H_2O$ | 30·87 | 0·045 | 10·0 | 46 7 |
| 14. Cinchonine A.T. .. .. .. .. | $C_{23}H_{27}O_8N_2Sb, \frac{1}{2}H_2O$ | 20·46 | 0·05 | 10·2 | 2 96 |
| 15. Cinchonidine A.T. .. .. .. .. | $C_{23}H_{27}O_8N_2Sb, 2\frac{1}{2}H_2O$ | 19·24 | 0·05 | 9·6 | 1 37 |
| 16. Sodium phenylstibinate .. .. .. | | 46·56 | 0·072 | 33·4 | — |
| 17. p-Phenetidine A.T. .. .. .. .. | $C_{12}H_{16}O_8NSb, H_2O$ | 27·29 | 0·08 | 21·6 | 8·5 |
| 18. Sodium p-acetyl-amino-phenylstibinate .. | $C_{24}H_{22}O_{10}N_2Sb_2Na$ | 40·12 | 0·133 | 55·4 | — |
| 19. Quinine A.T. .. .. .. .. | $C_{24}H_{29}O_9N_2Sb, H_2O$ | 19·13 | 0·15 | 31·0 | 0·10 |
| 20. Sodium m-acetyl-amino-phenylstibinate .. | $C_{24}H_{22}O_{10}N_2Sb_2Na$ | 40·12 | 0·174 | 69·8 | — |

TABLE II.

| | | | | | |
|---|---|---|---|---|---|
| Barium A.T. .. .. .. .. .. | $\left\{\begin{matrix} C_4H_4O_7Sb \\ C_4H_4O_7Sb \end{matrix}\right\} Ba\ 3\ H_2O$ | 31·63 | 0·01 | 3·2 | 0·49 |
| Potassium A.T. .. .. .. .. .. | $C_4H_4O_7SbK, \frac{1}{2}H_2O$ | 36·17 | 0·016 | 5·7 | 7·3 |
| Ammonium A.T. .. .. .. .. | $C_4H_4O_7Sb, NH_4\ 1\frac{1}{2}H_2O$ | 36·51 | 0·02 | 7·4 | 66·0 |
| Sodium A.T. .. .. .. .. .. | $C_4H_4O_7Sb, Na\ \frac{1}{2}H_2O$ | 38·01 | 0·025 | 9·5 | 91·0 |
| Lithium A.T. .. .. .. .. .. | $C_4H_4O_7Sb, Li.\ 2\frac{1}{2}H_2O$ | 35·75 | 0·04 | 14·3 | 180·0 |

A.T. = Antimonyl tartrate.

## (B) *Clinical Tests.*

Psoriasis was chosen for these tests because of its chronic intractable, generally incurable, nature. The first case treated was that of a war pensioner with moderately severe psoriasis. After a number of injections the skin condition cleared and five years later there had been no return of the condition. The next case was that of a girl, aged 11, with intractable psoriasis of scalp, face, trunk, and limbs (she could not walk). She was given 23 gr. over a period of ten weeks and the psoriasis practically disappeared. Four other cases were also treated, all of them of long standing, with head, face, hands, legs, and feet affected; one had been in this condition for 14 years, a second for 14 years, and the other two for 8 and 4 years. All of them were incapacitated by their ailment. Although each case showed improvement after a few injections, it was not until after some months—in some cases with intervals of rest—that the psoriasis disappeared.

There is nothing sensational about these cases. The antimony acted probably not directly on the psoriasis—it does not act when applied locally—but indirectly through its general physiological effect on body tissues through which it produced a marked improvement on the clinical condition of the patients. Antimony has a marked effect on the liver, and it seems possible that some alteration of protein metabolism may be produced. A small dose may cause increased cellular activity, a larger dose cellular degeneration, and an actual toxic dose cellular destruction.

## (C) *Histological and Experimental Tests.*

The toxic effects of antimony salts on animal tissues have been chiefly investigated by oral administration. In such cases, as is well known, the effect is that of a gastro-intestinal irritant, and most of the published work lays stress on this particular aspect of the question. Remote effects on the liver, kidneys, and heart have been noted, and Wynter Blyth[3] quotes experiments by Levin on rabbits fed by mouth with antimony, in which these effects on the viscera were observed. Korns[4] has also recorded a series of experiments on rabbits, injected intravenously, in which fatty degeneration of the liver is mentioned as occurring in several cases.

An opportunity was given us of examining sections of the viscera from a man suffering from bilharzia who was given intravenously 13 gr. of antimony tartrate by mistake. The liver showed signs of marked degeneration, the protoplasm of the hepatic cells was granular, vacuolation was marked, whilst the nuclei of the cells stained badly or not at all. The blood capillaries were distended and here and there were small patches of blood pigment. The interstitial tissue of the organ was also largely destroyed except immediately round the vessels. In the kidney there was, in certain portions of the organ, almost complete destruction of the epithelium of the tubules, especially of the convoluted tubules, with an invasion of leucocytes around, whilst the glomeruli were also degenerated and structureless. In other areas the destruction of the tubules had not progressed so far, a certain amount of detail could still be made out, and the glomeruli were intact. In these areas the vessels were dilated and leucocytic migration had occurred.

The following experiments were made with the object of investigating these questions further in animals.

Four rabbits were inoculated intravenously with varying doses of antimony tartrate in distilled water. The first animal was given ¼ gr. in 0·25 c.cm. water. The rabbit died during the night and was found to have hæmorrhage into the lungs and spleen, pericardial effusion, and the bladder distended with urine. Sections of the lungs showed dilatation of blood capillaries with minute extravasations of red blood corpuscles. The kidneys exhibited cloudy swelling of the cells of the convoluted tubules and dilatation of capillaries. In some tubules there was definite vacuolation of the cells. The straight tubules appeared to have escaped damage. The spleen showed two or three areas of hæmorrhage beneath the capsule, but no other changes were noted. The liver showed granular protoplasm in the hepatic cells.

The second rabbit received ⅛, ¼, and ½ gr. of antimony tartrate in 0·25, 0·5, and 1 c.cm. water respectively, at intervals of 18 hours. The animal died the day after the last injection. At the autopsy there was a small pericardial effusion, the bladder was distended with urine, the lungs congested and showing a few patches of hæmorrhage. Histologically the most marked change was in the liver, in which the hepatic cells of the lobules showed degeneration and vacuolation.

The third rabbit received ¼ gr. in 1 c.cm. water and died two days later. Here again the autopsy revealed pericardial effusion with dilated vessels in the pericardium, hæmorrhage in the lungs and spleen, peritoneal effusion, and a distended bladder. The liver was pale, and sections showed degeneration and vacuolation of hepatic cells as in the previous case.

The fourth rabbit, weighing 2 kilos, survived nine injections given during the course of 16 days, the doses rising from ⅛ to ¾ gr. and totalling 4¼ gr. The rabbit became ill the day after the last injection and died 24 hours later. At the autopsy the pericardium and peritoneum contained small effusions and the liver was pale, but no other lesions were noted. On section the liver showed very marked degeneration and vacuolation of the hepatic cells with destruction of nuclei; the central portions of the lobules were most affected.

An attempt was next made to protect a rabbit of approximately the same weight against the toxic effect of intravenous injections of antimony tartrate by injecting—again intravenously—5–15 minutes after each dose of antimony a solution of sodium thiosulphate. The animal was given eight injections of antimony, rising from ⅛ to 1 gr. and totalling 4¼ gr., during a period of 23 days. Each injection was followed by sodium thiosulphate, 0·6 gr. in the first three injections and 1·2 gr. in the others.

A control rabbit inoculated intravenously on eight occasions with doses of sodium thiosulphate alone, rising from 0·6 to 4·5 gr., showed no signs of discomfort.

### *Discussion and Conclusions.*

1. Patients subjected to a prolonged course of intravenous injections of antimony frequently exhibit signs of hypersensitivity—presumably an example of drug allergy—with non-toxic doses. 2. It is suggested that the signs of this hypersensitivity may be due to an alteration of protein metabolism and in extreme cases may resemble true protein shock. 3. The viscera of a man who had died from accidental error of dose of intravenous antimony showed degeneration and destruction of parenchyma of liver and kidneys. 4. In a series of four rabbits which succumbed to intravenous injections of antimony tartrate, two of the series died after initial doses of ¼ gr., a third after three doses of ⅛, ¼, and ½ gr., and a fourth after nine doses rising from ⅛ to ¾ gr. and totalling 4¼ gr. 5. The post-mortem changes noted in these animals were: (*a*) dilatation of blood capillaries, (*b*) effusions into serous membranes (pericardium and peritoneum), (*c*) hæmorrhages into lungs and spleen, and (*d*) retention of urine. 6. The chief histological lesion noted in these animals was degeneration of the hepatic cells. Similar, but less constant and less marked, degenerative changes were found in the kidney tubules. 7. An attempt was made to protect a rabbit against the toxic effects of antimony by injecting sodium thiosulphate shortly after each dose of the antimony. The animal died after receiving 4¼ gr. of antimony over a period of 23 days. This compares favourably with the fourth rabbit of the preceding series, which died after 4¼ gr. in 16 days without attempted protection with sodium thiosulphate.

*References.*—1. Fargher, R. G., and Gray, W. H.: Jour. of Pharmacol. and Exp. Therap., 1921, xviii., 341. 2. Kolmer, J. A.: Infection Immunity and Biologic Therapy: third edition, 1924. 3. Blyth, A., and Wynter, M.: Poisons, fifth edition, 1920. 4. Koms, S. H.: China Med. Jour., 1921, xxxv., 504.

# Clinical and Laboratory Notes.

## A CASE OF AMŒBIC DYSENTERY CONTRACTED IN ENGLAND.

BY MARTHA N. RUSSELL, M.R.C.S. ENG.,
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THE following case of amœbic dysentery is of particular interest in that the disease was contracted in England.

B. H., aged 38, was admitted to the Royal Free Hospital on Oct. 10th, 1925, complaining of diarrhœa, with bright red blood and mucus in the motions. She had suffered from this complaint for three years, and gave a history of sudden onset while she was engaged in cooking for a large institution in Manchester. When first admitted to the hospital she was having about six stools in 24 hours; these consisted chiefly of mucus and blood, there being very little fæcal matter present. On pathological examination enormous numbers of the cystic and vegetative forms of *Entamœba hystolytica* were found. After three courses of emetine—emetine hydrochloride gr. ½ hypodermically night and morning for three days—at three weekly intervals, the condition completely cleared up.

The pathological evidence and the cure by emetine leave little doubt that this was a case of amœbic dysentery. The interesting points in this case are the facts that the patient herself has never been out of England and that, so far as she knows, none of her associates have suffered from the same complaint.

I am indebted to Dr. W. P. S. Branson for liberty to publish this case.

## THE STORY OF A SYRINGOMYELIA.

BY W. S. HEDLEY, M.D. EDIN., M.R.C.S. ENG.
LATE PHYSICIAN IN CHARGE OF ELECTRO-THERAPEUTIC DEPARTMENT, LONDON HOSPITAL.

FOR the last 30 years I have had continuously under observation a case which, on account of its late appearance, its destructive onset, its slow progress, and its already long duration, seems deserving of record.

I first saw the patient, aged 35 years, in 1896. She had been of active habits up to five or six years ago, when she began to feel ill-defined sensations of "tingling" in both arms and shoulders. This disappeared, but shortly afterwards weakness and wasting of the arms became very evident, and advanced rapidly.

On examination the entire musculature of the shoulder-joint was atrophied and showed diminished or lost response to electricity, and in places R.D. The deltoid was powerless, and the triceps could not raise the arm against gravity.

Slight voluntary movement at the elbow was possible (by supinator longus rather than by biceps). Wrist movements weak. Flexion and extension of the fingers remained, but there was paralysis of interossei. A mass of brawny inelastic tissue lay beneath the skin of the scapular region. Tactile sensibility was not much impaired, but there was dullness to painful impressions and, most significant, loss of discrimination between "hot" and "cold," and in places actual reversal of these impressions.

It was fairly evident that the case was one of syringomyelia and that the cervical plexus had, as usual, borne the brunt of its onset. Some weakness in the legs was complained of, but she said that she could (and did) walk three or four miles a day without serious fatigue.

She had not been under treatment in England; but for some years past had visited German baths under local medical advice, and her German doctor, who was at the moment in England, accompanied her at her next visit to me. I told him my views, with which he agreed, and before taking leave he did not fail to impress on me the absolute necessity for a further, and immediate, course of (German) baths! I learned later that before her marriage her husband had taken her to consult Sir William (then Dr.) Gowers, in view of their projected marriage. Sir William Gowers explained to him the nature of the disease (syringomyelia) and told him to "get out of his head" any idea of taking the proposed step. The sequel was "the old, old story,"—they walked out of the consulting-room and thence, almost immediately, into the church.

Since that time the case has presented a steady, but astonishingly slow downward progress. The breathing is shallow, "costal respiration" is hardly perceptible. The diaphragm is acting far below its normal strength, but in forced respiration the sterno-mastoid and trapezius are still acting. Wrist flexion and extension and some pronation are still weakly present, but the claw-like hand ("main-en-griffe") is fully established. There is now very notable loss of power in the legs, and a quarter of an hour's shopping on the arm of a companion is all that she can accomplish. In a sitting position every voluntary movement of the leg can be carried out, although feebly and with effort, but in walking or standing balance is insecure and at times almost impossible. There is exaggerated knee-jerk on the left side, electrical reactions weak; can distinguish "hot" and "cold." The eyes are healthy, but about 20 years ago diplopia was present. Both external recti muscles were affected and the right inferior oblique, but the diplopia was not constant, and eventually disappeared under the use of glasses for near work, to take off the strain on accommodation. No articular troubles.

*Treatment.*—As the patient's general health has been excellent during the whole period under review, I have relied throughout on the triple agencies of electricity, massage, and movement. Three times yearly for 12 consecutive days the case has undergone this treatment, systematically and laboriously carried out. Uphill work for both patient and practitioner—the latter ever conscious that, successful though his delaying tactics may be, he must ultimately and inevitably prove to be the "player of a losing game."

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# Medical Societies.

## ROYAL SOCIETY OF MEDICINE:
### GENERAL MEETING OF FELLOWS.

A general meeting of Fellows was held on Jan. 25th, with Sir **StClair Thomson**, President, in the chair, when Lord **Dawson** opened a discussion on

### Hyperpiesis.

He said that it was natural in such a discussion to refer to Sir Clifford Allbutt, the great master who still inspired our thoughts on this subject. He had preferred the term "supertension" to "hypertension," and this term the speaker would use. The choice of "hyperpiesis" was preferable for discussion to that of "hyperpiesia" because the key to the disease and hope of alleviating it lay in the study of its beginnings. Supertension was not a disease, but passed gradually and without any sharp dividing line into certain disease conditions, better considered under their own proper headings.

### *Association of Supertension with Over-responsive Vasomotor System.*

He believed that there was a group of people who had an over-responsive vasomotor system just as others were liable to nervous dyspepsia and diarrhœa; it was part of their make-up. They were liable to transitory supertension under physical or psychical stress, some under the former alone, but the majority under psychic strain, particularly ambition. It might be a family trait. The link between the higher centres and the vasomotor centre was too intimate, so that the latter responded to every disturbance. He took, for example, three apparently healthy, happy school-boys. The first had a pressure of 125/60 recumbent which rose to 162/65 after running up 72 stairs two at a time. This was no more than one would expect from a boy slightly agitated at going to school for the first time, and it returned to the former reading after six minutes' rest. The second boy gave readings of 110/65 and 135/70, but the third had a recumbency pressure of 135/70, which went up to 170/85 after effort and took 20 minutes to return to normal. He was a potential hyperpiesic. What was in store for him depended on his circumstances, how engrained his vasomotor response was, his temperament, whether placid or over-anxious, whether he became a slave to anticipation, his employment, his social life, whether congenial or discordant, his physical habit, and his family tendencies. He might keep within the normal till middle age. Other examples of hyperpiesis were found in a series of 580 Toronto undergraduates, 10 per cent. of whom had a pressure over 140; in Alvarez's series of 1500 undergraduates, 20 per cent. of whom were over 140, and in a series of 650 London school-children, aged 10–17, 8 per cent. of whom were higher than 130. Some of these showed signs of cardiac stress; a little displacement of the apex, an enlargement to X rays, some accentuation of the second aortic sound, and a left-sided preponderance. There was evidence that supertension did exist among the young, and though in many it might be a passing phase it was not so with all. The condition was a reaction to modern civilisation. Dr. Strickland Goodall had found that the most frequent antecedent of a high blood pressure in cases under 40 years of age was scarlatina, but in Lord Dawson's opinion there was too strong a bias in favour of infection and not enough attention was paid to the soil. It was not likely that most of these healthy young people were the victims of infective processes. Frost had investigated some adult subjects of mental stress and anxiety and found a resting pressure of 148 with rise to 220 after effort; the same case examined on another day when the stress was absent gave a perfectly normal reading of 118–144. No individual with normal responsiveness of the vasomotor centre would show such a change in reading. In the next stage of the condition the rest pressure went to a higher level and the patient might complain of headaches or throbbings. The diastolic reading was of the greater importance; if it were not higher than 100 and there was no arterio-sclerosis a moderate systolic rise was not serious. As an example of a fixed supertension in youth he cited a girl of 23 who looked and felt healthy and had no disability save easy fatigue after a full day's work and some breathlessness after heavy exercise, with occasional headaches. She had had scarlet fever. Her resting pressure remained for several years 250/150, going to 280/150 after effort, and a month's careful treatment to reduce the figures only resulted in their return to the original reading after the first ten minutes' walk. Her younger sister had a rest-reading of 160/100. Her heart was slightly enlarged and her radials too palpable. Histologically, her kidney showed a marked pure hypertrophy of the media with early atrophy of the tubules. In some of the smaller vessels there was some hyaline thickening of the intima and splitting of the elastic tissue and focal deposits of fat, but these changes were slight. Hyperplastic sclerosis was probably not a factor in the early stages of hyperpiesis, though it played an increasing part later. It showed a marked selection for the vessels of the kidney, pancreas, and spleen, and developed in the course of hyperpiesis, which was apt to be followed by clinical arteriosclerosis, although the latter condition was not associated with hyperpiesis in half the cases. The two things might hunt in couples when hyperpiesis had reached a certain stage. Comparing the above early case of hyperpiesis and a case at a later stage, Lord Dawson pointed out that the thickening of the media was marked and the intimal change slight in the early case. At a later stage the thickening of the media was less apparent and the intimal change more apparent. It looked as if at a later stage the muscular tissue of the thick media might be replaced by fibrous tissue. The intimal change, though bearing no necessary causal relationship to hyperpiesis in the initial stages, yet gave the kidney large control in the later stage. The patches of atrophic tubules were due to failing blood-supply and their extension probably went hand in hand with hyperplastic sclerosis. These areas of atrophy and replacement fibrosis might extend with time, reduce the amount of functioning tissue and so lead to more cardiac hypertrophy. They might extend so as to involve glomeruli in such numbers as to produce an ischæmic nephritis—hence, perhaps, the resemblance of certain cases of advanced hyperpiesis to interstitial nephritis. There had been 4 of such out of 23 cases of high blood pressure recently reported by Dr. John Parkinson in his paper on heart failure with normal rhythm. He wished to emphasise that in its beginnings hyperpiesis had a functional origin, although the majority of cases showed themselves in later life associated with eclampsia and with the blubber type of obesity, suggesting warped metabolism. The chemistry of the condition was very difficult and liable to error. Investigation had shown no definite relation between it and the taking of meat, alcohol, or tobacco. It was a condition of over-excitability of the vaso-constrictor centre. In conclusion, said Lord Dawson, what were the beginnings and what were the stages in the evolution of the condition? The origins were several; the anatomical course was the same. Could, and did, hyperpiesis have an origin in exaggerated function—in an excessive vaso-constrictor responsiveness? If so, was hypertrophy of media and heart the earliest change? Or did hyperpiesis take origin in a previous infection? If so, was the next stage thickening and degeneration of the intima? When the condition occurred in middle life was the first stage infection or perverted metabolism? If so, was the resultant hyperpiesis the result first of vaso-constriction or of intimal degeneration? These were important questions from the point of view of early and preventive treatment.

Prof. F. R. FRASER said that the mean arterial pressure depended on the output of the heart and the peripheral resistance. He proposed to deal only with factors influencing the latter. In health it was so regulated by elaborated nervous reflex mechanisms that an adequate supply of blood was maintained to all the tissues. The vasomotor centre in the medulla was of principal importance. An adequate supply to the centre caused a rise of general arterial pressure through constriction of the arterioles, particularly in the splanchnic area. The centre was also stimulated by afferent peripheral stimuli such as those of pain. The higher parts of the cerebrum could also effect general arteriole constriction, as in sudden emotional states and the state of anticipation of sudden exertion. The injection of adrenalin could produce this effect, but to what extent the adrenal bodies were responsible in emotional states was still undecided. Chemical substances in the circulation could also produce a general arterial rise. Constriction of the arterioles and structural changes in the blood increasing the resistance to flow, as in hyperplastic sclerosis or erythrocythæmia, would have a similar effect. In such cases the raised blood pressure was a symptom of the more fundamental disease processes. A solution of the relationships between raised arterial pressure and degenerative changes in the arteries and renal disease would throw light on the whole problem. The possible causes for hyperpiesis appeared to be: (1) Disturbance of the vasomotor centre. (2) Influences at the centre from the higher parts of the brain or the periphery. The therapeutic success of rest cures and of education in hygiene favoured the existence of such a relationship, although it was difficult to see how emotional states could produce a persistent rise of pressure. Possibly there might be some adaptation similar to that of conditioned reflexes. (3) Circulating chemical bodies including internal secretions. This was supported by the number of cases arising about the menopause and those in adolescence that disappeared in adult life, and also by the satisfactory therapeutic results of restricted diet and restricted indulgence in alcohol and tobacco. (4) Unrecognised arterial or renal disease in early stages. It was probable that the persistently raised pressure in the group of cases labelled "hyperpiesis" was the result of a number of causes. In every early case careful note should be made of hereditary factors, constitutional make-up, exposure to mental and physical stresses, over-indulgence or unbalanced dietary, infections, and evidence of disturbances of internal secretion. He pleaded for more extended use of the sphygmomanometer, the diastolic pressure being the better guide to peripheral resistance.

Dr. F. PARKES WEBER denied that hyperpiesia could be an outcome of the stress of modern life. Prof. E. H. Starling had shown that the normal brain needed a well-maintained blood pressure, and that if there were any danger of the blood pressure in the vasomotor centre and brain becoming insufficient, the blood pressure of the whole body would be raised. Some persons who had led a very active life began to react to its stress at the age of about 50 by increasing blood pressure. This, he thought, was because the cerebral circulation became defective owing to changes in the arterioles, and because the nervous centres became blunted in some way and needed a higher blood pressure in order to enable them to perform the work demanded of them. The type of individuals that reacted to the stress of civilised life by increasing their blood pressure, while others remained at the prime of their usefulness, were not the constitutional neurasthenics and psychasthenics, whose safety-valve was their nervous system. Nor were they the chronic dyspeptics and visceroptotics whose gastro-intestinal system reacted to any stress with pain. They were people who have habitually taken more food, with or without excess of alcohol or tobacco, than they should have. They usually belonged to families with a tendency to high blood pressure. They did not reduce their food intake after puberty, but rather increased it. This set up a kind of vicious circle; for too much food produced a toxic condition, which affected the circulation of the brain. The resulting distress caused them to enrich their diet. The hyperpiesia of early life was much graver, for the constitutional factors outweighed all other. To try to produce an artificial low blood pressure by applying X rays to the suprarenal capsules, or by excising part of one of them, was very dangerous. He could not agree with the association of hyperpiesia with a large erythrocyte count.

Dr. J. A. RYLE stated that the predominant factor in high blood pressure conditions was a diathesis. He summarised the results of his analysis of 50 patients whose systolic and diastolic pressures were over 170 and 100 mm. respectively. Sixty-two per cent. were robust and stout; these he called the hypersthenic type. They possessed, as far as their alimentary system was concerned, a hypersthenic diathesis; their chest dimensions were large and the tone of their digestive muscles good. American observations on students showed that 10 per cent. of this type had hyperchlorhydria. Their output of work and their appetites were large. If they formed habits of excessive eating, working, or worrying their blood pressure would rise. These had rarely seen a doctor before for anything serious, and came when their complaint was still recent. High blood pressure in these was an exaggeration of their physical characteristics. 16 per cent. had poor physique. Their symptoms had appeared early in life, and they had suffered from alimentary trouble, pulmonary tuberculosis, and other chronic diseases. This type of hyperpiesia was entirely different from the hypersthenic type. 4 per cent. were nervous subjects, and their condition had inhibited the tendency. Two other groups were familiar: (1) where the menopause helped the constitutional disposition, (2) youthful cases which were exceptional. He said that we should probably obtain better results from studying the soil on which the condition flourished than by laboratory methods.

Dr. **DOROTHY HARE** drew attention to the fact that there might be considerable variations in blood pressure readings in any individual under uniform conditions. There might be a difference of 20 mm. in consecutive readings at one sitting. Her figures were drawn from a series of normal pregnant women seen at intervals of about a month. The conditions of examination were kept as uniform as possible, the patients lying down for at least 20 minutes before a reading was taken. The first reading was always discarded and then three consecutive readings taken by the same observers on the same instrument. The two arms were measured simultaneously and might show a difference of 10–20 mm. pressure, the right being higher than the left in 83 per cent.; 31 per cent. of the cases showed variations of more than 10 mm. in consecutive sittings.

Sir **JOHN BROADBENT** said that it might be taken for granted that some families had a tendency to high blood pressure and some to low. There was no high blood pressure without some degree of peripheral resistance. It was unreasonable to assume that high blood pressure was necessarily due to the nitrogenous excitatives that accompanied kidney trouble, for this was often absent. There must be some common cause. High blood pressure might be responsible for kidney trouble. Even if the vasomotor system were over-excitable there must be some toxin to excite it; adrenalin and thyroid would cause hyperpiesis, but there was no evidence of the hypertrophy of either of these glands in the majority of cases. High blood pressure and renal disease had many symptoms in common, but death in coma and convulsions was very rare in the former. It was impossible to state what the toxic substance was, but we should look less to the kidney for the cause of hyperpiesis and more to deficient metabolism by the liver. The French had given the name "uræmic moiety" to an unknown constituent that combined with excess of nitrogen in uræmia; this moiety might have some bearing on hyperpiesis.

Dr. **HENRY ELLIS** said that it was important to remember that the two types described differed in chemical composition. The first type—the majority—had always an increase of phosphoric acid in the urine, the ratio of combined ammonia and free phosphoric acid being level, and in these the toxic element could always be ruled out. In the second group the ratio was 3 : 1, and in all these cases there was a toxic element. If hydrochloric or other acid were administered to the first group the blood pressure rose markedly; in one case six doses of acid raised it from 140 to 250. This was due to a deficiency of the capacity of eliminating acids. High blood pressure in mature people was coördinated with increase of the acid ratio. Usually an intestinal toxæmia could be demonstrated, due to erroneous absorption of amino-acids which were eliminated by the kidneys. The rise of pressure was necessitated by the deficiency of elimination. Once raised it could not easily be altered, for sudden drop again would alter the inter-cellular equilibrium. It would not be possible to differentiate these cases until the urine was systematically examined. It was really a blood condition; possibly the viscosity of the blood was altered.

Dr. **J. C. BRAMWELL** agreed that the diastolic pressure was very important; a rise in the diastolic pressure raised the mean pressure and made the arterial wall much less distensible, which entailed a rise in the systolic pressure if the heart was to maintain its output. It also limited the oxygen intake of the body; even a great increase in the pulse-rate would only allow of very mild exertion. There was a compensatory modification of the cardiac mechanism, a prolongation of the ejection phase of systole, so that some of the blood discharged into the aorta had time to escape to the periphery before the heart attempted to discharge the rest of its contents. The sphygmograph record was of value in prognosis; so long as the systole was prolonged the muscle must be fairly satisfactory; when the record became more normal in appearance the prognosis was less good.

Dr. **HALLS DALLY** said that the same term was often used by different writers in a different sense and he was concerned with classification. Hyperpiesis was a rise in arterial pressure from any cause whatever, whether temporary or permanent. Ultimately the problem rested on physics. In physics there were only two causes for increased pressure—increased force and increased load. He suggested dividing hyperpiesis into three: (1) Hyperdynamia, (*a*) primary, in cases which necessitated an augmentation of the driving force of the heart and great vessels; (*b*) secondary, compensatory to (2) hyperachthia, which might be (*a*) primary, an increase in tone and thickening of the vessel walls associated with hypertonia, or (*b*) secondary, an increase of tonic contraction in response to hyperdynamia. (3) Hyperpiesia. This scheme could be adapted to low blood pressure by substituting "hypo" for "hyper." He wished to register a protest against the term "hypertension."

Dr. **C. O. HAWTHORNE** suggested that the term "blood pressure" should be done away with altogether and the term "sphygmomanometer reading" substituted. The fact was the reading; whether that meant blood pressure or not was still uncertain. He had noticed that the blue hands and chilblains of young women so often seen in out-patients were invariably associated with a high reading. He was quite sure that high readings in early life did not always mean a progressive condition.

Dr. **KINGSTON BARTON** said that he was obsessed by the idea that all cases of persistent high pressure could be reduced to some disease in the kidney. The prevailing tendency was to treat disease without knowing what health was. It was ridiculous to send cases of high blood pressure away as having "no disease" or "no cause." Fifty per cent. of the post-mortems done in London revealed kidney disease, but the assigned cause of death was "heart failure" or "cerebral hæmorrhage." They were told there was no kidney disease because there was no albuminuria; but the kidney could not be said to be sound before the heart had been X rayed and the blood-urea estimated. Hyperpiesia was a physiological safeguard and patients could not live without it.

## SECTION OF EPIDEMIOLOGY AND STATE MEDICINE.

AT a meeting of this Section held on Jan. 22nd, with Dr. E. W. GOODALL in the chair, Prof. E. W. HOPE read a paper on the

### *Influence of the Universities on the Advancement of Public Health.*

He pointed out that in the pioneer work of early nineteenth century hygienists the universities had no direct share. Revelations at inquiries into the condition of the people, the fear of cholera, and perhaps the publications of the Registrar-General, had excited the interest of educated men. The citizens of Liverpool had appealed to Huxley for advice, and through his recommendation had obtained a classical report by Burdon-Sanderson and Parkes. Sufficient interest had been excited by the beginning of the '70's of the last century to secure the establishment in several universities of diplomas in State medicine. The first to move had been the University of Dublin, although certain aspects of preventive medicine had been dealt with in the Scottish universities for many years previously. Describing the later developments of university teaching, Prof. Hope emphasised the importance of universities, not only for the training of undergraduate and graduate students but as centres to which all members of the community could look for guidance and special instruction.

The paper was discussed by Sir GEORGE BUCHANAN, Sir WILLIAM MACPHERSON, Dr. MAJOR GREENWOOD, Dr. G. C. TROTTER, and the CHAIRMAN.

## MEDICAL SOCIETY OF LONDON.

### MANIPULATIVE TREATMENT IN MEDICINE AND SURGERY.

AT a meeting of this Society, held on Jan. 25th, with Sir HOLBURT J. WARING, the President, in the chair, a discussion on Manipulative Treatment in Medicine and Surgery was opened by Mr. W. R. BRISTOW and Mr. R. C. ELMSLIE, whose contributions appear in full on another page.

*Discussion.*

Dr. H. A. DES VŒUX considered that the opening papers would have given the general practitioner much which would be useful to him, as he had not been taught anything at hospital concerning the cases which required manipulative treatment. The ordinary doctor seemed to be afraid of them. He agreed with Mr. Elmslie when he said there were 12 separate conditions of the knee-joint and that they were often very difficult to diagnose. And there was a medical side to the question of manipulative treatment, mainly in the matter of referred pains. Patients who complained that they had neuritis of a limb, which had been existing for months, or a year, were often found to have stiffness and adhesions but no neuritis, and careful manipulation of the joint would cure the pain in many instances. And in these cases cross-examination would bring to light an injury which had been forgotten. He mentioned some cases of the kind in his experience. He agreed with the openers that the main blame for the present condition of affairs rested with the lack of teaching concerning these cases at the hospital; it was because of this lack that the profession found itself on the defensive to-day on this subject.

Mr. T. H. OPENSHAW endorsed all that Mr. Bristow and Mr. Elmslie had said. If a man with a disability went to a bonesetter for treatment and was made worse by him it was the last thing the patient spoke about, but if he had been to members of the profession and then went to a bonesetter the latter never ceased to talk about it. The first thing the bonesetter did was to approach the people who wrote for the lay press. Some of these irregular practitioners seemed to be really innocent believers in their own ability. The newspaper crusade constituted a terrible handicap to the regular practitioner, as also was the holding of exhibitions on stages in various parts of the country. A case of the kind was that of a girl who 20 years ago came to the speaker with a paralytic hip-joint; her hip was constantly coming out of the joint at awkward times. She was brought to him at the orthopædic department of his hospital, and he put her into a splint and in three months the hip ceased to come out when she did not wish it to. After that he did not see her again. She was later secured by a bonesetter and paraded about the country, he paying her 5s. a night for exhibition. She walked on to the stage with her splint, the bonesetter called a doctor out from among the audience to certify that the hip was out, he then threw away the walking apparatus, manipulated the hip, the girl helped him by giving a wrench, the hip went in; she was again examined by the doctor, who announced his finding, and the girl walked off the stage unaided. He believed the demonstration was still proceeding.

Mr. ARTHUR EDMUNDS denied that the general surgeons in large hospitals did not take an interest in bone and joint cases and teach students concerning them. It must be remembered that each surgeon had only a limited number of beds, and many cases which would constitute excellent teaching material could not be accommodated. His teacher, Sir Watson Cheyne, did not omit the teaching of manipulation in bone and joint cases; indeed, it could be said that he was keen on it in the proper kinds of cases.

Dr. W. W. STOCKER said he had seen a well-known bonesetter at work, and if patients of his desired to go to a bonesetter he did not try to dissuade them. But he had never, in a long practice, seen a success achieved by a bonesetter on any of his (the speaker's) patients. He had found that it was of no use to argue with patients on this matter, as they were hypnotised by the press.

Dr. J. P. TRAYLEN spoke of the importance of getting from the patient a history of fairly recent injury, as this would often make clear an apparently obscure and difficult case.

Dr. P. B. SPURGIN said he thought the present difficulty in the matter under discussion was due to the great increase in medical knowledge in the last 20 years. In the old days apparently severe lesions were successfully treated by manipulative means. Nowadays the practitioner was diffident about dealing with such cases; he sought other opinions and relied more on mechanical means of diagnosis. There had been great manipulative surgeons in the profession before the use of X rays.

Mr. J. E. H. ROBERTS said he held strongly that there was now in the profession far too much specialism, though admittedly orthopædic surgeons during the past 20 years had advanced the knowledge of surgery in a way that no other branch had been advanced. He considered that surgical knowledge and practice should be more diffused and used more by the general man. Cases of tuberculosis of joints he thought were more common than was generally suspected, and he described a case which was regarded as an instance of this condition, but old tuberculin caused no reaction, and a history of a past injury having been elicited he successfully treated the case by manipulation. Chronic rheumatoid arthritis he found became worse by rest. He also spoke of the common class of case in which pain in the back had been caused by trauma. One such case was seen by a colleague, who ordered a plaster-of-Paris cast for 18 months, but the patient would not submit to it. The speaker saw her and found a tender spot in the erector spinæ; he gave gas and he manipulated and fully extended the legs, and this cured her. He quoted other cases. On the general question he said there was a great need for these cases to be collected and demonstrated to students as a definite part of their training. There was too much to do in an orthopædic department for this to be carried out there, especially as it was necessary to keep in touch with the cases and to note their progress.

Mr. WHITCHURCH HOWELL agreed that diffusion of knowledge on manipulative methods was necessary. He had two medical friends who had been treated by bonesetters, one of them successfully. Both were attached to famous medical schools in London. One had teno-synovitis of the neck and no skiagram was taken before the manipulation by the bonesetter. The other had sciatica and limped badly; it had been going on for months. This last lady went into a home, where she was manipulated several times by the bonesetter in question, and at the present time she had loss of sensation on the outer side of the foot and it might be necessary to have a toe amputated. One case he had recently seen of congenital dislocation of the hip had been under treatment in London by a bonesetter for 18 months. Each time the mother talked to the manipulator he assured her it was distinctly improving, and that he would eventually get the hip into the joint. No skiagram was taken. In the last three weeks he had seen another case which was under a bonesetter. It was that of a child aged 3, who was being taken twice weekly to have manipulation for congenital absence of the right radius!

Mr. St. J. Dudley Buxton said it would be agreed that bonesetters seldom manipulated cases of tubercle, unless they were very inexperienced. If they met with such cases they usually sent them away and charged no fee. The lay press was ranged on the side of the bonesetter, and this was a great handicap to the regular practitioner. But a number of practitioners in the profession seemed to be afraid of carrying out manipulation.

Mr. Cecil Rowntree gave an account of a case in which he managed to be present at a reduction on a patient carried out by a bonesetter in a case of a lesion, possibly myositis ossificans, at the level of the transverse process of the second lumbar vertebra. The treatment was successful.

Dr. A. C. Jordan said these manipulators had gone through a fairly prolonged course of accurate training, and hence were likely to be better at manipulation than the ordinary medical man who had not been so trained. Therefore, in the same way as a medical man, having made his diagnosis, employed the best masseur he could find, he could also, having made his diagnosis, hand over his patient to the skilled manipulator. The remedy seemed to be to create a band of manipulators who could be employed to act under the doctor's orders.

The President agreed that something more might be done in the way of teaching manipulative surgery to the student. Not long ago the question of the revision of the medical curriculum was under consideration by the General Medical Council, whose committee discussed the question in considerable detail. That committee issued a recommendation to the licensing bodies and through them to the schools, that mechanotherapy should be an essential part of the medical student's curriculum, that term being meant to include manipulative surgery. There were general surgeons who took a certain number of dressers, who, during their dressership, had to be taught various branches of surgery. As had been said, the general surgeon could not be an expert teacher in everything, neither could he have cognisance of everything which went on in the case of every patient under his charge. Also, one's beds were too limited to teach the whole subject, and the beds had to be occupied by the more serious cases. A large number of patients coming to the out-patient department could be treated best by manipulative means; they might not be seen by the assistant surgeon or the surgeon. There was a tendency for the younger men in lecturing to choose advanced subjects, and to leave out what might be termed minor surgery. He thought it was an open question whether mechano-therapy should be made a compulsory part of the student's curriculum; the lack of time was the trouble, and he did not think advanced specialism was the true remedy. There was needed, however, some modification in the curriculum which would enable students to be automatically taught a number of the methods at present under discussion. His view was that many practitioners were afraid of boldly treating injuries of joints and their after-results. That was brought forcibly home to him during the war. He agreed with what Mr. Openshaw said in regard to the press. The press dearly loved to get up a "stunt" which was against some statutory body; they said the medical profession was a closed borough, governed by a body known as the General Medical Council, and that they did things they should not do. Therefore they were fair game for the press. Consequently if the press was approached in the proper kind of way it was a very easy matter for the irregular practitioner to get very favourable notices in a considerable part of the press. He was able to say that if one sent a statement to the press containing a true account of matters and it happened to be against the "stunt," the probabilities were all against such communication being published. The regular practitioner was at a disadvantage in this contest because he could not advertise. This matter was going to be very much more under consideration before the present year had finished, and much would be coming along which would need the close attention of the profession and of the medical societies if the medical profession was to remain in its present position.

### *Reply.*

Mr. Bristow reminded the meeting that this was not a discussion on specialism; his main wish was that the student and practitioner should be taught these things. He was not sure that "mechanotherapy" was a happy term to indicate to the generality of people that manipulative methods were meant. He dissented strongly from the view expressed by Dr. Jordan.

Mr. Elmslie said people had come to him with the remark that they were not sure whether they had approached the right person, whether they ought not to have gone to a bonesetter. Many did not realise that the qualified surgeon carried out manipulations. That was largely attributable to the attitude taken up by the press. During the last discussion on this subject in *The Times* very opprobrious remarks were made by Mr. G. Bernard Shaw against the masseur profession, and a short letter was sent to that journal from the Registered Society of Medical Masseurs, signed on behalf of the medical members by Sir Cooper Perry, explaining the position and training of members of that body, but it was not inserted. He concluded with a few words in justification of specialism in surgery.

## ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

At a meeting of this Society held on Jan. 21st, Colonel S. P. James being in the chair, Dr. James Hasson read a paper on a

### *New Method of Diagnosis and Vaccine Treatment of Leprosy.*

He said that the present methods of treating leprosy were far from satisfactory in many instances. The results of chaulmoogra oil, hydnocarpate, the morrhuates, and amino-arseno-phenol were contradictory. This was partly due to the metamorphic possibilities of the objective symptoms of leprosy, the variance of which was probably accounted for by the varying degree of intoxication of the patients. No leprologist could boast of having witnessed true cures with any form of therapy. He had therefore investigated a vaccine method, using a stock autolysate containing 15,000 million of *B. pyocyaneus* and about 5000 million of Hansen's bacillus to 2 c.cm. of physiological saline. Leprous patients had blisters induced on them with carbonic acid snow; these were emptied 24–36 hours later, and the sera of different forms, nodular, anæsthetic, and mixed, were incubated together at 36° C. for a period of from 50 days to three months. A mixed culture of *B. pyocyaneus* was then added to the serum (previously rendered incoagulable by the addition of a sterile solution of 2·5 per cent. sodium citrate), and the whole was centrifuged for 20 minutes. The requisite quantity of distilled water was then added, the bacilli counted, and the solution put up in 2 c.cm. ampoules. A symptom of very great value in early diagnosis was a subnormal temperature of 1° or 2°. It was because of this temperature that the bacilli were incubated at 36° C. only.

The method of Row, of Calcutta, using three months' old Koch's bacillus, differed only in his use of non-specific simple unmixed autolysate, and was undoubtedly sound. The action of both vaccines was explained by the formation, in the liquid of the vaccine, of antibodies excreted by the bacilli themselves. Besredka, of the Institut Pasteur de Paris, had shown that infected wounds cleared up rapidly when filtrates of old cultures of the causative organism were used therapeutically, even in cases where fresh vaccines had failed Besredka had used specific filtrates only, but the virtue of Row's non-specific method in leprosy was easily accounted for by the close relation between *B tuberculosis* and *B lepræ* The *B pyocyaneus* was included in order to induce an increase of temperature capable of "dislodging" the bacilli. Injections might be given intravenously or subcutaneously Intravenous injection produced a violent reaction in one or two hours with shivering and rise of temperature up to 104° or 105° F Twenty four hours later the patient would be quite well After subcutaneous injection the temperature rose only a degree or two After the third dose the nodules rapidly flattened and dispersed, while the achromic and anæsthetic patches became smaller and disappeared in 2–4 months There had been no case of relapse after 18 months, and one case of maculo-anæsthetic leprosy treated 14 months ago remained clinically and practically cured, the examination of excised tissue the Klinger-Hertzfeld reaction with Joltrain's antigen, and the Bordet-Gengou reaction all being negative

Dr Hasson demonstrated a case of Dr Manson Bahr's with an anæsthetic patch about $2 \times 4$ cm. above the right knee A section of excised tissue and scrapings of the nasal mucosa showed no bacilli, but blister fluid revealed their presence in abundance The blister was raised by carbonic acid snow produced in a simple wooden mould devised by Dr Hasson and called a "cryocanthere" Vaccine treatment had reduced the anæsthetic area to 1 sq cm and hairs were beginning to grow on it

Dr P H MANSON-BAHR said that his experience with the classical method of treating leprosy had been most disappointing and had impressed him with the absolute failure of the chaulmoogra oil preparations He had recently examined an undoubted case of leprosy treated by Dr Hasson's method and had been unable to find any trace whatever of leprosy save slight thickening of the ulnar nerves.

Lieut.-Colonel W P. MACARTHUR then delivered an address on

### *Old Time Plague in Britain.*

After discussing the varieties of fleas responsible for carrying plague, he pointed out that the disease was dangerous to the insect as well as to man, its œsophagus got choked with a plug of bacilli which it injected into the blood of the host. About 70° F was the optimum temperature, so that the disease was most rife in England in a dry, hot summer Plague was never spread from man to man, as the quantity of bacilli in the blood was very small, the culture had to be incubated in the flea. If the Black Death had been contagious it would not have taken a year and a half to spread over England. The plague of Justinian in 513 was the earliest epidemic that invaded this country It was not found mentioned in English records, but appeared in Irish and continental documents, in the latter of which it was called the "groin disease." In 661 appeared another outbreak, described in Irish records as bubonic. These attacks recurred continually throughout the Middle Ages, and were generally ascribed to famine In the fourteenth century came the "Black Death," a name that was not used until more than 200 years later The contemporary term was the "botch," a word corresponding to "boss" or bubo, which was a favourite term of abuse in the time of Knox, long before its modern equivalent "Boche" was made familiar This epidemic spread westwards from Asia, entering England at Weymouth in August, 1318, and thence sweeping over the country. Scotland escaped in the main and seized the opportunity to mass for an attack on England, but the army met the plague near the Border and 5000 died. A special prayer for protection against the plague of England still found in the Army service dated from this experience. There were no exact mortality figures of 1350, but from one half to two-thirds of the people died Judging from tithe records there were about 24,000 inhabitants of Norwich before the Black Death, and only 7000 after it. Three archbishops died within the year Yet still hope was found to triumph over experience, as one lady was recorded to have buried three husbands in three months! Most of the information was obtained from clerical records, and from these we learned that in East Anglia alone 800 parishes were left without incumbents, 80 of them twice, and 10 of them three times The Black Death was without exception the greatest calamity that had fallen on the human race within historic times; it broke up the feudal system and altered the course of history The confusion and chaos were like a great gulf breaking the continuity of history and tradition. The pestilence smouldered for 300 years after the chief outbreak. In May, 1440, Parliament adjourned to Winchester, a little later to Ludgate, then to Leicester and Reading, and finally closed down. Epidemics occurred in 1500, 1500, 1513, 1531, 1542, and 1547 In 1531 the Bills of Mortality first appeared; the Lord Mayor was ordered to report weekly the number of deaths due to the plague The first Plague Order of which the text survives in extenso dates from 1542, when all plague houses were ordered to be closed and marked with a blue cross and the words 'Lord Have Mercy On Us' Should any of the inhabitants of such houses receive special permission to go abroad they were to carry white wands 2 feet long All dogs were to be destroyed except watch-dogs, there was a strong idea that dogs and cats helped to spread infection. The sanitary conditions of the time were ideal for plague The floors were of loam spread with rushes amongst which were cast bones, beer, vomit, and excrement, none of which were ever removed, they were merely covered with more rushes The houses were crowded and ill ventilated, and the streets full of garbage and excrement. Rats ran everywhere and fleas were regarded as of no more significance than the clothes of the bed. The poet John Donne once observed a flea spring from his lady to himself, and touched by the bond of union thus set up went home and wrote a sonnet about it, ending up with the line—

> And in the flea our two bloods mingled be."

In 1553 2000 persons died of the plague in London in one week. Stratford-on Avon suffered badly, but Shakespeare's family escaped, and his father subscribed liberally to the relief fund. The first mention of John Shakespeare was his appearance before the court for having outside his door an accumulation of filth that offended even the sensitive noses of his neighbours Shakespeare suffered many things from the plague, for all theatres were closed whenever the deaths totalled more than 30 per week. In 1603 Shakespeare's company produced four plays at Hampton Court Palace since the theatres were closed for so long a time in London, and James I subscribed £30 for the relief of the distressed members of the company In this year the crosses on the doors and the wands were changed from blue to red, but this had no marked effect in checking the plague In 1625 occurred an epidemic—wherein 4000 died in London in one week—which was known as the "Great Plague" until that of 1665 effaced it In the latter year 70,000 were recorded as having perished, and this was undoubtedly an understatement, as every effort was made to conceal the true cause of death in order to avoid the restrictions Deaths ascribed to "malaria" in this year reached the unlikely figure of 5000 There were many concealed deaths from plague in the parish of St. Giles-in the-Fields in 1601, and the disease was endemic in the squalid, overcrowded, filthy "liberties" outside the city walls By the end of August, 1665, the usual flight had set in. The Lord Mayor and Aldermen and the stout-hearted Duke of Albemarle remained at their posts and stringent quarantine was enforced. The unfortunate people shut up for a month in infected houses were often robbed and sometimes murdered by the watchmen set to guard them. Eventually the quarantine orders broke down because there were too many houses to guard, and over 1000 corpses were collected by the watch-carts every night. Cats, dogs, swine, and rabbits were forbidden in the city and thousands were killed. It was thought that they absorbed effluvia from the dead bodies and carried infection in their fur. There was much dispute as to whether fires in the street were efficacious or not, and if so whether they should be of coal or of wood, and which variety of wood most possessed the mysterious antiplague properties. Finally rain fell and put the fires out, and the Lord Mayor sensibly refused to have them lit again. For 17 years after this plague deaths were recorded, and the real reason for its final disappearance was the development of a sanitary conscience among the people, producing an environment unfavourable to plague, which is essentially a disease of filth and overcrowding. All scavenging and sanitary measures were put under a central authority. The Fire of 1666 helped indirectly because the Rebuilding Act, hoping to prevent another such conflagration, forbade lath-and-plaster houses, and so sealed the doom of *Mus rattus.* Driven from the shelter of houses it encountered the rigours of the climate and, finally, the competition of *Mus norwegicus,* though this species did not become common till 40 years after endemic plague had disappeared in England. Thus the great European plagues of the eighteenth century left this country untouched.

## LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held at the Leeds General Infirmary on Jan. 15th at which Mr. A. L. WHITEHEAD occupied the chair.

Dr. W. MACADAM read a paper on the uses and limitations of

### *Tests of Function in Medical and Surgical Practice.*

Lengthy, elaborate, and complex procedures, he said, are out of place in clinical medicine. The various tests of function are of little value if considered alone; they must always be viewed in relation to the clinical condition of the patient. Nor must inadequate function of an organ be regarded as necessarily synonymous with disease. A study of the amount of urea retention in the blood in conjunction with a comparison of the percentage of urea excreted in the urine is the simplest and safest guide to the state of renal function. But a high blood-urea is found in many conditions other than kidney disease. Even a high blood-urea plus albuminuria is not sufficient for diagnosis. Tests of hepatic function have so far not yielded the reliable results given by renal tests, and from the medical point of view they are disappointing. The most useful is the lævulose test; the value of such dye tests as phenoltetrachlorphthalein is still uncertain. van den Bergh's test, although not of much practical value in clinical differentiation of the various types of jaundice, is proving useful in detecting early or latent jaundice, and in distinguishing between hæmolytic and secondary anæmias. Dr. MacAdam emphasised the failure of basal metabolic rate as a diagnostic adjunct in those doubtful early cases of hyperthyroidism in which the clinician also is uncertain. As a measure of the efficacy of various lines of treatment and as a guide to the best time for operation the basal metabolic rate is, however, of distinct value.

### *Clinical Demonstration.*

Mr. P. J. MOIR showed two cases of hydronephrosis illustrating the usefulness of pyelography as a method of diagnosis and examination.

Dr. R. C. WALKER (for Dr. WARDROP GRIFFITH) demonstrated a case of thoracic aneurysm occurring in a man of 33 years. On admission to hospital there was a well-marked pulsating swelling of the chest, which subsided with rest and iodides. Dr. Walker expressed the opinion that the signs on admission left room for no doubt that the condition was one of aneurysm; but there was no history of syphilis, and the Wassermann was negative.—Dr. CURTIS BAIN (Harrogate) and Dr. R. A. VEALE both indicated that they were not convinced, and expressed the opinion that dilatation of the aorta due to aortic disease, probably rheumatic in origin, was a likely alternative.

Dr. C. W. VINING, in association with Mr. J. F. DOBSON, showed a child of 4 years upon whom the operation of thoracoplasty had recently been done for unilateral fibrosis and bronchiectasis following empyema at the age of 11 months. Parts of the sixth to the eleventh ribs had been removed, and Mr. Dobson believed that it would probably be necessary to remove two or three more before efficient collapse of the base of the lung was attained. Following the operation there had been an immediate decrease in the quantity of sputum.

Dr. VINING also showed a boy of 10 years with a three years' history of vomiting believed to be functional. No organic or toxic cause had been found to explain the condition, and the X ray examination demonstrated no obstruction, organic or spasmodic. A month previously the boy's condition was critical, the emaciation being extreme; he weighed only 27 lb. Following the passage of a stomach-tube the vomiting had completely ceased, and his weight was now 41 lb.

Cases were also shown by Dr. J. LE FLEMING BURROW, Mr. L. R. BRAITHWAITE, and Dr. W. H. ROWDEN.

## ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

### *Insanity from the Point of View of the General Practitioner.*

THIS Society met on two recent occasions to discuss this subject. Prof. ARCHIBALD YOUNG, the President. and Dr. W. A. PRIDE took the chair on the first and second evenings respectively.

Dr. R. O. ADAMSON said that insanity was to be regarded as a symptom and studied as such. It was in no way different from other symptoms dealt with by the general practitioner, and it should be approached along the familiar road of careful clinical investigation. The distinction between sanity and insanity was an arbitrary one, but it was important to distinguish what insanity was *not.* It was not a minor psychosis, a neurosis, or a hysteria. In family practice, he said, it was important to take advantage of every opportunity to study early cases and to treat cases, as far as possible, before certification.

Dr. J. H. MACDONALD, speaking from the point of view of an asylum physician, made a plea for earlier diagnosis of insanity and earlier removal of the patient to an asylum. Any disease was, of course, more amenable to treatment in its early stages, but it was particularly difficult to make contact with mental patients after morbid habits of thought and action had been established. Many cases of incipient insanity could be definitely checked and the onset of secondary symptoms prevented by appropriate treatment in the early stages. Not only from the individual but also from the sociological point of view the subject was of the utmost importance. Of 18,398 insane in Scotland, only 3014 were maintained by their relations and the remainder cost the State about £700,000 a year. The observation wards in the parish hospitals had proved of great service and the stigma of being "on the parish" might disappear under new health administration. Observation wards in a general hospital were not suitable, though more use might be made of out-patients' clinics similar to those already attached to some of the general hospitals. Properly organised asylums were probably the best means of dealing with the problem, but the public must be educated to regard them as "hospitals for mental disease," into which anyone, whether able to pay for maintenance and treatment or not, could be admitted as a voluntary patient. Social considerations were a powerful factor in influencing a decision against certification. Dr. Macdonald concluded by referring to the necessity for after-care to prevent relapses, and to some of the difficulties arising out of certification.

Mr. John Drummond Strathern, Procurator-Fiscal for Glasgow and the lower ward of Lanarkshire, discussed insanity as it affected criminal responsibility. There were two distinct classes of case in which acute difficulties arose: (1) cases of murder or grave crime in which a plea of insanity in bar of trial was raised; (2) cases of minor crime in which accused persons were usually certified under Section 15 of the Lunacy Act, 1862. It was frequently found that individuals of the first class had previously led a normal life and had shown no indication whatever of insanity. Such a prisoner might be examined by different medical men not unfamiliar with questions of lunacy—for example, by the divisional police surgeon soon after the crime, by the prison surgeon, and by mental specialists for the Crown—without any trace of insanity being found. Notwithstanding this, at a later stage mental specialists instructed by the defence would probably reach quite a contrary conclusion. This was an unsatisfactory state of affairs, and it was not easy to explain the reason for the conflict of opinion. The law was quite plain. An individual is responsible for his act unless he can show—the onus is upon the accused—that he was unable by reason of mental disease to know the nature and quality of his act, or, if he did know it, that he did not know that he was doing what was wrong. An insane person is held not to be responsible for a criminal act upon the ground that, by reason of his state of mind, he is incapable of formulating an intention to commit the crime. A criminal intention is essential in all acts of crime. Not only, said Mr. Strathern, was there complete conflict in medical opinion as to what constituted medical unsoundness in such cases, but very frequently there was actual disagreement among the medical specialists on the facts elicited by examination. Such a state of affairs was not creditable to the medical profession, and greater unanimity should be secured if possible. In his opinion the confusion arose from the failure of medical examiners to understand exactly what the law requires in order to establish a plea of insanity. One body of medical men appeared to be applying the legal definition of insanity, whereas those opposed to them were applying varying standards of their own and regarded a criminal lunatic rather as they would a private patient.

Many accused persons of the second class, continued Mr. Strathern, suffered from temporary insanity or insanity of a mild type from which they would probably recover; but many, on the other hand, were hall-marked criminals and dangerous to the lieges—in short, criminal lunatics and potential murderers, who should be kept under strict supervision permanently or at least for a prolonged period. Such persons might be certified and confined to an asylum, but they were often out again in a very few months by simply escaping from the asylum or by obtaining their release under a certification of soundness by the asylum physician. It was not long before their offence was repeated and they were again certified and confined to an asylum, only again to achieve their liberty by the same process. There was very marked contrast between the methods followed by the medical profession in dealing with those two classes of case. In his opinion society was entitled to be protected against lunatics of the latter class. Once crime was added to lunacy, the point of view of public interest should be paramount and the sentimental interest of the patient and his family should become subservient.

Prof. John Glaister said that there was comparatively little risk in certifying mental patients provided that the duty was exercised bona fide and with reasonable care. But a patient in whom there was some departure from normal mental health might be dealt with in another way, as long as the amount of departure did not bring him within the limits of certifiability. In Scotland such a person might be placed in a private, unregistered place, as a home, under a certificate given by a medical practitioner, under Section 13 of the Lunacy (Scotland) Act, 1866, for a period not exceeding six months. To the subject of criminal responsibility Prof. Glaister attached great importance, especially in view of the increasing frequency of pleas of insanity by persons accused of heinous crimes. The presumption of the law was that every person who had arrived at the age of discretion was sane and was accountable for his actions unless the contrary was proved. The person setting up a defence of insanity was required to prove not merely some taint of insanity, but the particular and appropriate kind recognised by the law.

Dr. Ivy McKenzie deprecated the present tendency to establish irresponsibility on what is known as modern psychological theory. It was no doubt important from the legal point of view to establish a defence, but in so doing the interests of society must not be sacrificed. Whilst admitting the desirability of recognising the various clinical types and grades of insanity, he thought that the application of the various technical terms and designations as well as the employment of vague and indefinite phraseology might, and did, prove confusing in the problem of criminal responsibility. Where, in his own practice, there was a question of plea at bar of trial, he was not guided exclusively by the legal precepts as laid down by the various authorities. His method of approach in any particular case was to consider, first, whether the symptoms presented conformed to any well-recognised syndrome, and secondly, whether the patient would have been a suitable case for admission to an asylum supposing no crime had ever been committed. Where criminals were committed to prison under Section 15 the responsibility of the doctor was even greater. About these cases, Dr. McKenzie agreed with the Procurator-Fiscal's point of view, and considered that quite a different standard was required from that governing the first type of case. Here there was an individual who repeatedly committed crimes, such as assault and indecency, on whom punishment had no deterrent effect. Such cases should be classified as insane and certified as such. The feeble-minded person could never be a criminal by reason of defect, but by something that he did—some positive harmful act—and the question here should be: Was the actual conduct prejudicial to society? The average defective was a very harmless person, but when he acquired vicious habits he might become dangerous and should then be classified as insane and dealt with accordingly.

Dr. D. K. Henderson considered that the whole question of mental disorder and defect—of crime, delinquency, and unemployment—was a problem which had as its unit individuals who, for one reason or another, had been unable to meet the stress and strain of ordinary social life. To deal with this radically an attempt should be made to get at the potentially disordered individual at an earlier stage. We must begin in the nursery and we must pay special attention to the school period. Children's teeth and eyes were carefully examined and looked after; there were special classes for cases of mental defect; but was sufficient attention paid to the "problem" child, sensitive and nervous, asocial and a dreamer? The general practitioner should always keep in mind the psychological aspects of (even physical) illness, and all such symptoms as tantrums, sleeplessness, irregularity of appetite, and nocturnal enuresis should be treated with great seriousness. The practitioner could also help by urging the value of treatment in a mental hospital, minimising as much as possible the stigma of certification. He thought that in the past asylum superintendents had not taken up a sufficiently definite attitude towards the problem of the mental health of the community. Turning to the medico-legal side, Dr. Henderson said that he believed law and medicine to be two different subjects altogether; he did not see how they could ever see eye to eye. The law dealt with the crime, whilst medicine dealt with the criminal. The law was therefore, to a certain extent, partisan, whereas medicine and medical opinion should be unbiased. Furthermore, it was constantly said that the plea of insanity in criminal cases was now completely overdone, whereas, in his opinion, quite the opposite was true. Mental disorder in relation to crime was not fully enough considered, and there were far more insane people convicted and sent to prison than there were sane people who escaped the rigour of the law on the plea of insanity. Dr. Henderson quoted statistics which made him certain that our prisons to-day were loaded with individuals in many respects not responsible, though he agreed that in major crime insanity was far too frequently pleaded.

Dr. MARION GILCHRIST thought that some provision should be made for senile dementia other than asylum care. She agreed with Mr. Strathern and Dr. McKenzie that, where homicidal persons were concerned, it was much more important to look after the interests of the sane than of the insane and that the sane should be protected from homicidal maniacs. Especially she thanked Mr. Strathern for his comments on the punishment of offenders against women and children. It was a disgrace to our civilisation that these men should be allowed to be in and out of prison, or in and out of asylums as at present, and it should be quite possible to detain them for life.

## ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Jan. 14th, when Dr. J. F. CHRISTIE, Vice-President, took the chair, and Dr. J. ROSS MCKENZIE read a paper on some advantages of

### *Gas and Oxygen Anæsthesia in Major Surgery.*

The technique of surgical operations, he said, had now reached a very high standard, but a number of early post-operative deaths were still unaccounted for. After describing a new apparatus embodying a triple sight feed for the administration of nitrous oxide, oxygen, and carbon dioxide, with or without ether, from which any combination and percentage of the gases could be obtained at will, he enumerated the operative advantages of gas and oxygen anæsthesia under the following headings: Ease of inhalation and induction, safety of patient, blood and circulatory apparatus unaffected, anoxæmia absent with normal metabolism, rebreathing with conservation of patient's own carbon dioxide, and de-etherisation with rapid recovery. Ether could be eliminated by making the patient rebreathe his expired carbon dioxide and by supplying this gas through the apparatus. Post-operative advantages included marked relief to the patient from nausea, sickness, and gastro-intestinal distension; normal functions of all the organs throughout the period of anæsthesia; and notable absence of chest complications. Dr. McKenzie put forward the suggestion that this form of anæsthesia acted as a protective against post-operative thrombosis and embolism. Surgical shock, he believes, is due more to a toxic anæsthetic, lack of oxygen, and loss of carbon dioxide, than to operative trauma and loss of blood. The difficulty experienced in inducing anæsthesia with gas and oxygen in young children could be overcome by using a face-piece with a graduated expiration valve attached directly to the gas bag.

Dr. A. OGSTON, Mr. A. MITCHELL, and Mr. W. ANDERSON were amongst those who took part in the discussion.

## LIVERPOOL MEDICAL INSTITUTION.

AT a meeting of this Institution on Jan. 14th Dr. DINGWALL FORDYCE read a short paper on

### *Epilepsies in Childhood.*

He first referred to the difficulties of early diagnosis of epilepsy when the manifestations were those of incomplete forms such as visceral spasms. An epileptiform attack having occurred, the cause (apart from diabetes or uræmia) might be: (1) A gross intracranial abnormality such as birth trauma, infantile cerebral paralysis, or some form of amentia. Or (2) the attack might occur as a symptom of, or in conjunction with, primary amentia unassociated with gross intracranial abnormality. It was most important for prognosis to recognise whether or no amentia was present apart from the fits. He had recently had in review 129 children of school age, reported as being sufferers from epilepsy. In 35 of them there was evidence of an organic cause or of primary amentia (i.e., 18 cases of primary amentia, 10 of infantile cerebral paralysis, and 7 of birth trauma). The significance of such differentiation was shown by the figures for imbeciles. Of the 129 children, 32 were noted as imbeciles or probable imbeciles, and of these 16 were cases of idiopathic epilepsy, 9 of primary amentia, 4 of infantile cerebral paralysis, and 3 of birth trauma. In other words, half the imbeciles or probable imbeciles came from the group of 94 cases of idiopathic epilepsy and half from the group of 35 with organic lesions of the brain or primary amentia. Lastly (3) there might be no evidence of gross organic abnormality or of primary amentia. In this group were to be placed cases of (*a*) spasmophilia, (*b*) infantile eclampsia, (*c*) occasional fit or fits, (*d*) pyknolepsy, and (*e*) characteristic idiopathic epilepsy. In all the types of case in this group the presence or absence of an essential or idiopathic epilepsy might be conjectural, for a time at least.

MANCHESTER ROYAL EYE HOSPITAL.—At the annual meeting, which completes the 110th year of the hospital's activities, it was stated that the number of out-patients treated was 32,243, and of in-patients 2138. The average length of stay of in-patients in the hospital was 18·9 days, and the number of accidents treated was 8425, an average of 23·1 per day. The hospital serves an area embracing the greater part of Cheshire, all Lancashire, and beyond as far north as Carlisle, as well as the West Riding. A legacy of £10,000 is to be devoted to the new out-patient department. In spite of a rise in the ordinary income, it was found necessary to draw to the extent of £1200 on the hospital's accumulated fund.

PUBLIC HEALTH PROGRESS IN MANCHESTER.—Dr. R. Veitch Clark, medical officer of health for the city, has recently given some striking figures illustrating the marked improvement of public health in Manchester in the last generation. Public health is concerned primarily with the abolition of illness rather than with the reduction of death-rates. Among children under 5 the death-rate in 1911 was 56, and in 1922 it was 39, an improvement of 30 per cent. in ten years. Among children from 5 to 10 in the same period the death-rate fell from 3·9 to 2·9, a reduction of 25 per cent. The improvement among children from 10 to 15 years old was 27 per cent. The percentage of deaths below 5 years in 1904 was 43 per cent., in 1924 it was 24 per cent. The true index of the efficiency of preventive medicine is the increase of health and personal efficiency. About 1850 every boy at birth had an expectation of life of 39·9 years and every girl one of 41·8 years. In 1922 the expectation of a boy had risen to 54·6 years and of a girl to 58·6. At the age of 7 a child had attained more than half the height of an adult and one-third the adult weight. To make up the other half of its physical development it took 18 or 19 years. This put an undue strain on the body cells, and it is the object of preventive medicine to reduce this strain. In Manchester about 40 per cent. of the mortality occurred at the age of 25 or earlier. The conclusion to be drawn is that disease should be attacked within this period, when its influence, because of its effect upon development, was most malign. Health in childhood and youth meant efficiency in manhood.

# Reviews and Notices of Books.

## PRACTICAL PHYSIOLOGY.

Second edition. By E. P. CATHCART, M.D., D.Sc., F.R.S., D. NOËL PATON, M.D., LL.D., F.R.S., and M. S. PEMBREY, M.A., M.D., F.R.S. London: Edward Arnold and Co. 1925. Pp. 400. 18s.

THIS book is now divided into three parts, the first being devoted to experimental physiology, the second to physiological histology (a subject not formerly dealt with), and the third to chemical physiology. Among the many excellent features of the revised elementary experimental course are the important training in observation and deduction which it gives, and the large preponderance of experiments on the human subject. The authors point out that "the problem to be investigated and the methods of investigation are indicated . . . . but the results to be obtained and the conclusions to be drawn are left to the student." In the advanced course animal work naturally takes a more prominent position, but even here its application to man is never lost sight of, and whenever possible the human subject is used as the experimental animal. This part is profusely illustrated with good experimental tracings, which serve not only as a source of information to the student, but also as an encouragement to him to produce the neatest work which his limited experience in experimental technique will allow. Those tracings showing the attainment of the "steady state" in human and in frog's muscle, and the rapid exhaustion which ensues in the latter when the circulation is arrested, are especially fine. In Part II. the functions of living cells are studied as far as is possible by means of the microscope. Physiological histology, however, cannot confine itself entirely to the study of living tissues, but must include the preparation and study of tissues no longer alive. And just as the study of gross anatomy has preceded the study of physiology, so very frequently the study of minute anatomy must precede observations during life. These reasons are given for including in this course, not merely the methods of studying the living structures, but also the methods of preparing and studying these structures after death. Part III. contains an elementary course in chemical physiology, which follows the usual lines of an advanced course. The latter is to a large extent concerned with quantitative methods, and includes a description of the Douglas bag method for the determination of the basal metabolic rate.

The authors have been successful in condensing into small compass the experimental study of a wide physiological field.

## THE MENTAL GROWTH OF THE PRE-SCHOOL CHILD.

A Psychological Outline of Normal Development from Birth to the Sixth Year, including a System of Developmental Diagnosis. By ARNOLD GESELL, Ph.D., M.D., Professor of Child Hygiene, Director of Yale Psycho-Clinic, Yale University. New York: The Macmillan Company. 1925. Pp. 447. 16s.

THE main interest of this book consists as much in what it foreshadows as in what it actually achieves, though the extent of its achievement must not be under-estimated. Hitherto students of the psychology of the young child have confined themselves to careful observation day by day and month by month of individual children in their spontaneous activities. In this connexion the work of Pestalozzi, Perez, Froebel, Preyer, Sully (to mention only a few) has still much more than historical interest. But it was inevitable that the methods of estimating the average intelligence and achievement that have been applied to the school child by Binet and his successors should be extended to younger children and even to infants. This book contains an account of the work done on modern scientific lines at the Yale Psycho-Clinic under Dr. Gesell's direction, by observation and experiment upon normal children, with a view to determining the normal course of development of the child. Necessarily a considerable extension of the idea of what constitutes a "test" has been required. Some of these "tests" are really only accurate observations of a child's spontaneous movements and reactions to stimuli and of his physiological development; others are definitely tests, but more practical than linguistic. The results of the study of several hundred children are presented as cross sections of the stages of development reached at ten ages, ranging from 4 months to 5 years. The method of applying each test or "item," as the author prefers to name it, is fully described, and the comprehensiveness of the inquiry may be gauged by the large number—144—of "items" included. They are grouped under the headings of Motor, Language, Adaptive Behaviour, and Personal Social Behaviour. Very few of even a young baby's normal activities have been omitted, but it is doubtful if it is wise to accept a mother's statement regarding any particular action where the examiner has himself failed to observe or to elicit the action, the mother being scarcely ever an unbiased observer.

Those who practise mental tests of low-grade subnormal children will be grateful for the additional material put into their hands by this book; it supplements very usefully the weakness of most existing scales for the lower mental ages. It may become possible, after further standardisation of some of these tests on larger numbers of children, to arrive at intelligence quotients of some reliability for very young children. Premature grading is, of course, to be deprecated, but mental tests have tended to dispel the old notion that "late development" is anything more than a rarity. Included in the volume are some interesting studies of twins, showing remarkable correspondence of results, even in small details. Precocity and retardation are also discussed, with illustrative cases.

The book can be commended to the attention not only of medical officers who have to estimate retarded children, but also to the practitioner. He will find here means of attaining a truer estimate of a child's stage of development than he is frequently able to do when pressed by anxious parents for prophetic opinion.

## PSYCHO-PATHOLOGY.

*An Introduction to Objective Psychopathology.* By G. V. HAMILTON, M.D., Director of Psychobiological Research, Bureau of Social Hygiene, New York City. London: Henry Kimpton. 1925. Pp. 354. 21s.

ONE way of meeting the problem of the relation of body and mind is to exclude mind from our consideration and express human behaviour in mechanistic terms. Dr. Hamilton has made experimental studies of animal behaviour, has isolated certain reactive tendencies common to human and infra-human species, and then in a study of 200 nervous patients has used this classification to explain the behaviour of the patients and help in their treatment. In his therapy he employs methods which are now becoming established among psychopathologists, and the reader unfamiliar with these methods will find in the case-histories a useful introduction to practical treatment. The novelty of the author's presentation lies in the use of terms derived from his animal experiments, and we find such case-headings as "Persistent, Non-adjustive, Affective Reaction to Unsatisfied Major Cravings." But the striving for objectivity seems to fall short of its aim; "sexual-romantic cravings," for example, can scarcely be conceived in terms of animal behaviour or in any terms that exclude the consideration of mental processes. The demand that psychopathologists should exclude whatever cannot be verified by recognised methods of the natural sciences might be applied to exclude the speculative statement, concerning habit formation in the chick, that "synaptic connexions are made in its nervous system for a positive feeding-reaction to the object."

The clinical value of objective psychopathology is not clear, especially when we read, at the end of Chapter II., of a patient receiving a ten-page dissertation on psycho-analysis, which must surely leave him guessing as to the difference between the two theories. The author concludes with a denunciation of the "Freudian thesis"—frequently repudiated by Freud—that "sexual desire is, generically, the original source of all human action." The book contains many practical and original observations, but it is difficult to regard the author's theories as more than an ingenious attempt to evade a problem.

### THE HEALING GODS OF ANCIENT CIVILIZATIONS.

By WALTER ADDISON JAYNE, M.D., Emeritus Professor of Gynæcology and Abdominal Surgery, University of Colorado. New Haven: Yale University Press; London: Humphrey Milford, Oxford University Press. 1925. Pp. 509. 23s.

THE book before us is the second work published by the Yale University Press on the Philip Hamilton McMillan Memorial Fund established in 1922. It is not exactly a book to be read through, but rather an expanded dictionary which will prove useful to anyone who wishes to lay his hand on passages from both ancient and modern writers which throw any light upon the subject of healing gods. Dr. Jayne, possibly because there is so little known about definite gods of healing, has stretched his terms of reference widely. He includes deities remotely connected with healing, such as Aristaios, and the innumerable secondary deities of the Roman Pantheon, such as Prema, Vitumnus, Abeona, Adeona, Intercidona, Pilumnus, and Deverra, at whom St. Augustine poked fun in his great work De Civitate Dei. The three deities last named were personified at the birth of a child by three men carrying respectively an axe, a pestle, and a besom, with which they struck the threshold, that by the use of these signs of agriculture the wild wood spirits might be prevented from entering and harming the baby. On p. 444 Dr. Jayne refers to the portent of the birth of an hermaphrodite, and gives two references to Livy as to the procedure upon such an occasion. He would have found many other references in the Libellus Prodigiorum of Julius Obsequens, who gives about a dozen instances; the unfortunate child was disposed of by being thrown into the sea or into a river. Julius also refers upon many occasions to the birth of monsters, and upon one occasion to a child with an imperforate anus. Dr. Jayne deals not only with Roman deities, but with those of Egypt, Assyria, ancient India, Phœnicia, ancient Persia, Greece, and the Celts. Among the last mentioned was a deity named Mogons, whose name "probably means the 'increaser.'" Apparently Thackeray was not aware of this deity, or surely he would have added him to the list of ancestors of Alured Mogyns Smith de Mogyns (formerly Muggins), whose genealogical tree began with Shem and one of whose more modern forbears was Mogyn of the Hundred Beeves under Boadicea. Sir Alured had seven children, so Mogons did not forget his descendant. We commend Dr. Jayne's book, especially for the accuracy and fullness of his references.

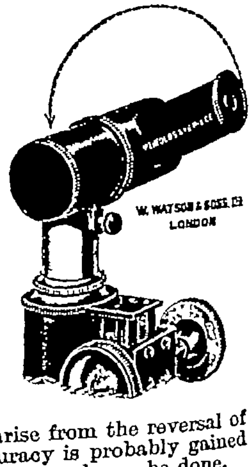
## JOURNALS.

BRITISH JOURNAL OF CHILDREN'S DISEASES. Vol. XXII. October–December, 1925.—In a paper on Brain Tumours in Children: their General Symptomatology, based on the analysis of 125 cases admitted to the National Hospital, Queen-square, Dr. Macdonald Critchley discusses the phenomena common to all varieties of cerebral tumour met with in pædiatric practice. The rarity of the disease in infancy is shown by the fact that only three cases in the series occurred in the first three years of life. As regards localisation, 59, or 47·2 per cent., of the tumours were situated in the pons or cerebellum; 34, or 27·2 per cent., in the cerebral hemispheres; and 14 were classified as pituitary or suprapituitary. Tuberculomata were the most frequent type encountered, the masses being often multiple, gliomata came next, and then sarcomata, while gummata, endotheliomata, and neurofibromata occurred in much smaller proportions. In addition to the triad of headache, vomiting, and papillœdema, an alteration in the child's character was often an outstanding feature. As a rule the march of the disease was progressively downhill, but in some cases, especially in tuberculomata situated in the ponto-cerebellar region, one or two remissions might occur.—Dr. E. A. Cockayne reports two cases, with photographs and skiagrams, of Hypertelorism. From consideration of the six cases now on record he concludes that hypertelorism is a congenital but not a hereditary condition.—Dr. Thomas Brushfield contributes an illustrated article on the Plantar Lines in Mental Defectives, based on the study of the feet of 918 children in the Fountain Mental Hospital. The following lines were noted: (1) Crease lines: (*a*) transverse caused by flexion, (*b*) longitudinal caused by the movement of bringing all the toes together, (*c*) a delicate network of fine lines. (2) Plantar lines or folds—viz., the oblique plantar line which was an almost constant feature in the Mongol, the transverse plantar line, and the transverse hallucial line. Dr. Brushfield maintains that, owing to the constancy and persistency of these lines in mental defectives, they should always be looked for and their presence regarded as a stigma.—Dr. F. Parkes Weber records a case of Morbilliform and Bullous Eruption with Jaundice from Luminal in a Choreic Girl. Morbilli bullosi could be excluded, as not only did the child never seem really ill and had practically no fever, but she had also a history of having had "measles" twice previously.—Dr. Parkes Weber also contributes a paper on Granuloma with Foreign-Body Giant-Cells due to the Injection of Ether into the Panniculus Adiposus.—Dr. Angelica Panayotatou, of Alexandria, reports a case of Cystitis caused by *Amœba histolytica* and *Schistosoma mansoni* in a Native Boy aged 7 years. Recovery followed treatment by intramuscular injections of emetine hydrochloride.—The abstracts from current literature are devoted to diseases of the genito-urinary system.

# New Inventions.

## THE PENFOLD INCLINABLE EYEPIECE APPLIED TO HÆMATOLOGY.

LABORATORY workers who have frequently to make use of a hæmocytometer have deplored the necessity for having the microscope in the vertical position, which is both uncomfortable and fatiguing. With the apparatus here illustrated the object on the stage of a vertically disposed microscope can be viewed as comfortably as if the instrument were inclined. The prisms are so adjusted as to permit of any convenient angle of inclination of the limb bearing the eyepiece. The hæmocytometer, with its liquid contents, remains flat on the stage of the vertical microscope, but the observer can perform the enumeration in the usual position for comfortable microscopy. I have not found any difficulty to arise from the reversal of the image and feel that accuracy is probably gained by the greater comfort in which work can be done.



The makers of the apparatus are Messrs. W. Watson and Son.

A. PINEY, M.D. Birm., M.R.C.P. Lond.

THE LANCET.

*LONDON: SATURDAY, JANUARY 30, 1926.*

## MILK PASTEURISATION AND BOVINE TUBERCULOSIS.

WHOLE-HEARTED advocates of pasteurisation of milk-supplies base their faith on the fact that the reduction in the general bacterial content of the milk thereby achieved, and more especially the complete removal therefrom of occasional contaminants of high pathogenic importance, such as the bacilli of typhoid and tuberculosis, are considerations which should be fully weighed by those responsible for the public health. They are in no sense opposed to campaigns for the more general production of what is spoken of as "clean milk." On the contrary, they welcome all attempts to raise the standard of hygiene at the farm and dairy and likewise those efforts which the intelligent dairy farmer and the Ministry of Agriculture are making to eradicate tuberculosis from dairy herds. They recognise, however, that progress in these directions must perforce be tedious and that the health of the community, and more particularly of the child, cannot be allowed to suffer in the meantime if an immediate remedy is available. Their standpoint, in fact, would be precisely that of those who advocate prophylactic immunisation as an immediate remedy to be applied where general hygiene fails or lags.

Opponents of pasteurisation have complained (1) that the procedure advocated may whitewash a really grossly contaminated milk; (2) that the vitamin value of the milk is interfered with; (3) that pasteurisation does not perform what it claims to perform in the matter of germ reduction; and (4) that in particular there is no guarantee that occasional tubercle bacilli in milk are killed by the procedure in question. With regard to the first and third objections, there can, of course, be no doubt that grossly contaminated milk may acquire fictitious merit as judged by bacterial content and that certain forms of pasteurisation plant cannot effect the desired reduction in germs for the simple reason that disinfection by heat is a time process. It is certain, however, that inadequate cooling of milk after the pasteurisation process and carelessness in the preservation of milk, whether in the milk-shop or in the home or both, account for much of the subsequent rise in the bacterial content which has been alleged to take place in pasteurised milks. The difficulty can in great measure be overcome by delivery of the pasteurised and cooled milk in sealed bottles. The second objection has, we believe, a certain amount of validity, at least theoretically, by reason of the fact that the antiscorbutic vitamin does suffer some destruction during the pasteurisation process. Milk, however, is a poor source of this vitamin to start with and the defect can be readily made up with orange juice. As regards vitamin "B" and the fat-soluble vitamins, the chances of destroying these at the pasteurisation temperature are remote. The fourth objection to pasteurisation would be a very serious one if it were well founded, because we would be inclined to risk all the other alleged imperfections and disadvantages of the method if there was a certainty that the communication to children of tuberculosis of bovine type could be averted. That there should be doubt even at this time of day regarding the time-temperature factors necessary to kill tubercle bacilli in milk is, perhaps, not surprising when it is remembered that the aim throughout has been to show not that temperatures short of the boiling-point can kill tubercle bacilli in a certain time, but that these bacilli can be effectively destroyed if the milk is brought up to, and maintained for a due time at a certain minimum temperature, consistent with the preservation of the physical, chemical, and nutritive properties of the milk.

The time-temperature condition now generally adopted both in this country and in America is 62·5° C. for 30 minutes, excluding the period of time required for raising the milk to the desired temperature. Objection has been taken to much of the experimental laboratory work on this question on the ground that it has been carried out with milk artificially contaminated with cultural tubercle bacilli and that in naturally infected milk from cows with tuberculous udders the infective bacilli may be tucked away in particulate purulent or mucoid masses which the disinfecting process does not effectively reach. It has even been alleged, though without the slightest evidence, that the tubercle bacilli, if affected at all, are merely reduced in virulence. Whether a particular commercial plant can on the large scale repeat laboratory conditions of experiment is not germane to the argument, but it is obvious that unanimity in the effectiveness of a particular laboratory procedure is a necessary preliminary to any campaign designed to render commercial plants more effective and more deserving of public confidence. In a communication on this subject which we publish in our columns to-day, Dr. R. G. WHITE records a very extensive series of experiments carried out in the bacteriological department of the Lister Institute and designed to test whether naturally or artificially infected milk is rendered non-infective for guinea-pigs when subjected under laboratory conditions to a temperature of 62·5 ° C. for 30 minutes. The results of Dr. WHITE's experiments, which were all very carefully controlled, show clearly that no danger need be feared from milk, even massively infected with tubercle bacilli provided it is subjected to pasteurisation under the conditions prescribed. There is, indeed, some evidence that the period involved in raising the milk to the required temperature (about 8–10 min.) and the holding of it for periods less than the prescribed 30 minutes may suffice to annul the infectivity of the milk.

It is clear, however, that if commercial pasteurisation is to ensure freedom from bovine tuberculous infection, the plant must be so designed that the milk passing through the machine is really brought up to a temperature of 62·5° C. and maintained thereat for half an hour. Nothing less will serve.

## THE INTRAVENOUS ROUTE.

DRUGS may be administered in many ways, but, practically speaking, no matter what the portal of administration, they all reach the circulating blood. This is generally the result aimed at, for by no other method can the effect of the drug on the body as a whole be secured. If the substance be injected into a vein, then its dissemination by the blood-stream unchanged is ensured at the outset, and this would appear at first sight to be the most desirable method for the administration of remedies. Certain drawbacks, however, present themselves, of which undoubtedly the most important lies in the rapidity of the addition to the blood of a foreign substance. Quite apart from such factors as bacterial contamination and actual toxicity, there is a growing body of opinion that the injection of foreign substances into the blood-stream is in itself a risky business.

In America, where intravenous therapy is very widely practised, Dr. P. J. HANZLIK, of San Francisco, has repeatedly called attention [1] to this risk. After many experiments involving the administration of a wide range of substances he has arrived at the conclusion that there are at least two factors to consider. There is first the essential toxicity of the substance, and secondly what may be termed a non-specific toxicity. In experimental animals the intravenous injection of almost any substance is attended with definite changes which include fluctuations in the blood pressure, collapse, shock, and symptoms bordering on anaphylaxis. The seat of these changes may be at the site of injection, in the capillary bed, or in distant organs such as the liver. Further observations pointing in the same direction have been made by Dr. J. B. CHRISTOPHERSON and Dr. S. R. GLOYNE, at the City of London Hospital, and appear in the present issue of THE LANCET. They find that intravenous injection of antimony in animals produces capillary dilatation, serous effusion, and hæmorrhage into lungs and spleen, but that the chief brunt of attack falls on the hepatic cells and to a less degree on the kidney tubules. The same parenchymatous degeneration of liver and kidney was evident in the case of an accidental overdose of intravenous antimony in man, and the authors note the occurrence of hypersensitivity produced by antimony injections in doses well below the toxic limit. Whether or no the liver is associated with the non-specific toxicity is not definitely decided, but we have ample evidence that the liver suffers in the long run from the essential toxicity of the drug injected. It would almost seem as if this useful organ sets out to defeat the aims of intravenous medication by promptly absorbing and storing away the drug so administered, particularly if it be a metal. The kidney again excretes as much as possible, with the result that the concentration in the blood is rapidly diminished. The body, in fact, gets rid of the intruder from the blood as quickly as possible, no matter at what sacrifice.

At the present time intravenous therapy is chiefly used in such systemic infections as syphilis, in various tropical diseases, and in blood transfusion. In the last named a whole series of fresh and interesting factors have to be considered in addition to those already mentioned. Should lysis of the donor's blood take place, the resulting hæmoglobin is excreted by the kidney where, under certain circumstances, it may block the tubules, producing fatal obstruction and uræmia. This precipitation of hæmoglobin in the renal tubules has recently been shown by S. L. BAKER and E. C. DODDS [2] to depend on two factors in the urine—namely, its acidity and its salt concentration. Such precipitation can be avoided in animals by keeping the urine dilute and alkaline. It is therefore suggested that when there is evidence of hæmolysis in the receiver's blood resort should at once be taken to alkaline transfusion. These observations may have a direct bearing on intravenous medication and serve to confirm a recent editorial statement in the *Journal of the American Medical Association* that ignorance in this field of intravenous medication demands the greatest caution and conservatism.

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[1] Hanzlik, P. J., De Edo, F., and Tainter, M. L.: Arch. Int. Med., 1925, xxxvi., 447. Hanzlik, P. J.: California and West. Med., 1925, xxiii., 161.

[2] Baker, S. L., and Dodds, E. C.: Brit. J. Exp. Path., 1925, vi., 247.

## MONEYLENDING AND MEDICINE.

THE Joint Select Committee which last year considered proposals to amend the Moneylenders Act was more than once invited to detect affinities between the professions of moneylending and of medicine. One moneylender dwelt on the fact that both professions have to respect the confidence of their clients. Another was willing to see advertisement abolished because the doctors got along all right without it. There was evidence indeed of further bonds—if the word be not too equivocal—between medicine and usury. Athough one witness was shocked at the suggestion that he circularised the names in the Medical Directory, another admitted that he might sometimes address himself to all the doctors in a particular area. There was also produced for the Committee's inspection a circular which began:—

"DEAR SIR,—May we inform you that we specialise in making strictly private cash advances to medical practitioners, entirely without security, repayable by convenient monthly or quarterly instalments out of panel or other fees."

A recent pamphlet [1] places doctors third in the list of classes victimised by moneylenders, the first place being assigned to expectant heirs and the second to clergymen. Naturally, it is unlikely that the moneylending fraternity would overlook the medical profession. Its members, more perhaps than those of any other calling, have to mortgage the future by an outlay of capital—for the purchase of a practice, a house, or a motor-car—often in anticipation of the fees which will recoup the expense.

No laws have succeeded in suppressing usury. It cannot be denied that the lending of money is a valuable social service. Equally it cannot be denied that the system produces grave abuses. It seems trite and unnecessary to warn professional men not to borrow from moneylenders so long as money can be raised through a bank or an insurance company. And yet a well-known solicitor informed the Committee that he had often known "extremely clever professional men, doctors and others," entangle themselves desperately in the moneylender's toils, not because they were hopelessly insolvent at the beginning but merely because they were so unbusiness-like as not to realise that they could get the money elsewhere. He explained how he had sometimes freed them from their troubles and paid off the moneylender by raising funds from an insurance company or from a bank by means of two sureties or an insurance policy. It is probable that these men went to the moneylender because he offered the usual protestation of "strict privacy." The offer is illusory. As soon as the borrower gives his name and address the moneylender passes on the information to an inquiry firm in order to find out if there have been previous loans. Thus is explained the otherwise mysterious circumstance that as soon as a man has borrowed from one moneylender he at once receives a flood of circulars from others. When the borrower is harassed by an unscrupulous lender, the best defence is attack. Instead of waiting for the threatened writ from the moneylender, he should himself begin proceedings in the Chancery Division and ask for relief on the ground that, in the language of the Act of 1900, the rate of interest is excessive and the transaction harsh and unconscionable. The mere institution of such proceedings has been known to induce a marvellous reasonableness in the lender. But of course such action involves publicity, and publicity is a lever in the lender's hand. A shrewd observer advised the Committee that no change in the law would be satisfactory unless it deprived the moneylender of his three weapons—pressure of publicity, pressure of bankruptcy, and pressure of costs.

The Bill which the Committee's discussions evolved gives some defence against the threat of bankruptcy, but does not appear to adopt the proposal that all moneylenders' claims should be dealt with primarily in chambers and not in open court. One moneylender before the Committee frankly admitted that his trade had four abuses—misleading advertisements, preliminary fee-snatching, excessive interest, and harsh enforcement of the default clause. With all these the Bill deals faithfully. Circulars and advertisements are virtually prohibited, charges for preliminary expenses are forbidden, the force of the default clause is limited, and a savage rate of interest is mitigated It is proposed that, if the rate exceeds 4 per cent. per month, the court shall presume the transaction *to be harsh and unconscionable unless the contrary* is proved. This throws the onus of proof upon the moneylender, and (an important point) if he fails to discharge the burden he will presumably have to pay the costs of the action. The Bill goes further. It eliminates the moneylender's tout, prohibits the assignment of a loan, and requires the moneylender to be licensed, for which purpose he must obtain a certificate from the local bench of magistrates, the certificate being exposed to forfeiture or endorsement if he misbehaves. The proposed legislation will not make moneylending impossible; it is not intended to do so. It will, however, spike the guns of the unscrupulous moneylender and relieve the misery of his victims.

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[1] 3000 %, or the Borrower's Book on Moneylending. By H. H. Kelsey, solicitor of the Supreme Court. Anti-Moneylending Association. 2s.

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## THE HAGUE CONFERENCE ON SMALL-POX

AN important conference, arranged by the Health Committee of the League of Nations, met at The Hague from Jan. 4th to 7th to examine outstanding questions in connexion with small-pox, alastrim, and vaccinia. This conference was attended by Prof Ricardo Jorge (President), Prof. Madsen, Sir George Buchanan, Dr. Carrière, and Dr. Jitta, commissioners appointed by the Health Committee, with the following experts. Dr. Mervyn H. Gordon and Dr. F. R Blaxall (England), Prof. Gins (Germany), Prof Soberheim (Switzerland), Dr. Levaditi (Pasteur Institute, Paris), Dr. Terburgh and Dr. van Bonwdijk Bastiaanse (Holland), along with Dr. Norman White and Dr. Olsen representing the Secretariat of the Health Section of the League. The subjects had received preliminary consideration by the Health Committee and by the Permanent Committee of the Office International d'Hygiène Publique at a plenary session in Paris, when a draft scheme was drawn up by Prof. Jorge to form the basis of discussion at the conference As a result of its deliberations, the conference formulated a series of conclusions on the methods to be adopted for continuing and intensifying the research work now going on. It was decided · (1) To pursue the study of alastrim as fully as possible, from a clinical as well as from an epidemiological point of view. (2) To carry out certain inquiries at vaccine institutes with a view to formulating conclusions as to the essential matters over which Government control should be uniformly exercised, and also to secure data for comparison of the different tests proposed for measuring the potency of vaccine lymph. (3) To give close attention to the affections of the central nervous system which have been reported to have followed vaccination in some countries. The nature of these cases, which are extremely rare in comparison with the large number of vaccinations performed, is not yet determined, and for this very reason inquiry is needed. The conference decided to request the League of Nations to invite the various Governments with which it is in relation to collect information from their public health authorities, and to communicate it to the Commission. The Commission will then collate and report on all the data obtained, while technical investigation will be carried out by the expert members with the necessary assistance It is understood that a committee to be appointed by the Ministry of Health will carry out the work in this country in collaboration with the foreign observers.

# Annotations.

"Ne quid nimis."

## THE HEALTH OF THE ARMY IN 1923.

THE report on the Health of the Army for 1923 appears only ten months after its predecessor, and it is evident that the leeway of the war is being made up. The statistics presented all seem to be encouraging and there is evidence of a gradual lessening in disease. We may here quote some of the figures; those in decimals are proportions per 1000 men, and those in parentheses are the figures for 1922 given for comparison.

There were among officers 280 9 (298 3) admissions to hospital, for which malaria was the commonest single cause. The officers' death-rate was 3 03 (4 48); there were 10 deaths from injury and 7 from pneumonia. Losses by invaliding are unstated, as is usual in these reports Among other ranks admissions were 481·0 (515 8) and malaria was again the most frequent cause, though gonorrhœa was responsible for more time lost in hospital than any other disease. The death-rate was 2 84 (3 22) and 175 died from injury, 57 from pneumonia, and 50 from specified diseases of the digestive system. There were 41 suicides which are not included in the 2 84 per 1000 mentioned above. Invalids finally discharged were 14 50 (19 31), and this rate covers 451 men discharged for inflammation of the middle ear and 236 for tuberculosis. The proportion is almost identical with that noted in 1922. Admissions increased from malaria, sand fly fever, inflammation of tonsils, and dysentery, and decreased from influenza, venereal diseases, scabies, and diseases of the digestive system other than tonsillar and hepatic ailments. Iraq was the only important station which showed an increase of admissions, the most noticeable being dysentery, malaria, and sand-fly fever. Pulmonary tuberculosis, 2 9 (2 5), slightly increased in the Army of the Rhine. The report has been remodelled, and has now half as many pages more than formerly, and these are in larger type. It begins by discussing individually the most important diseases, and there follow special reports on medicine, surgery, hygiene, pathology, dental treatment, and the examination of recruits. Stovarsol was found to be most effective with relapsing amœbic dysentery, and tartar emetic with oriental sore. Recent alterations in the regulations for the accommodation of troops in transports have reduced tonsillitis by two-thirds, and diseases of the respiratory system by one-half. The report on pathology mentions a chronic tuberculous ulceration of the skin of the penis, for a time thought to be venereal, and a spheroidal-celled carcinoma of the appendix which recurred in the cæcum and caused fatal obstruction. The preparation of vaccines and sera at the Army Medical College is thought to have saved the State £12,050 in 1923. Dental treatment was required by 63 0 per cent. (74 23) of the men and two-thirds of them had their treatment completed. Scaling and cleaning of the teeth is done when necessary, and stomatitis and gingivitis were considerably reduced. As to recruiting, 370 04 (375 22) candidates for enlistment were refused at once and 40·09 (32·09) were rejected within six months. In this last group there were 2351 men, and it is estimated that each of them cost the State about £50. The chief causes of rejection were loss and decay of teeth, defective vision, defects of lower limbs, and deficient chest measurement. The causes of rejection which most increased in 1923 were middle-ear and heart diseases. It is observed that small-pox was very prevalent in this year in the United Kingdom, but great trouble was taken to secure necessary vaccination and re-vaccination, and no case occurred among the troops at home. Tuberculosis in the Army is thought to bear close relation to the standard of medical [illegible] It appeared twice as often, 2·9, in the Army of the Rhine as in the Army generally, 1·4. [illegible] the whole Army 56·4 (70·7) admissions to hospital for venereal diseases, which was a considerable reduction. They were halved on the Rhine, 136·3 (234·2), and this is ascribed somewhat pessimistically to the increased value of the mark. The report well repays study for its observations on the prevention and treatment of disease.

## CANCER IN TAR-WORKERS.

COMMENTING recently [1] on the death from cancer of a man who had been employed for 24 years at a municipal gas-works, we remarked that it should not be impossible to bring to the knowledge of all workmen concerned the protection which early treatment provides and the danger of delay. Sir Thomas Legge calls our attention to a leaflet on the subject issued by the Factory Department of the Home Office in June, 1924, entitled "Epitheliomatous (Skin) Ulceration as affecting Pitch and Tar Workers."

"Some pitch and tar workers develop small warts or ulcers on the skin of the face, arms, and very frequently in the neighbourhood of the private parts of the body, *especially on the scrotum, and it is these that may grow into the serious condition.*

"If a wart or ulcer appears on any part of the skin medical attention should be sought *at once*, so that a doctor can advise the proper treatment.

"All warts or ulcers do not necessarily grow into cancers, but those set up by pitch and tar and oil *may* do so, and are therefore best removed. This can be done quite simply. There is little fear of cancer developing under 10 years of employment and if the worker is under 35 years of age.

"The only treatment known to be successful at the present time is to remove the growth completely by operation, and therefore the smaller it is the more easily can this be done, and the sooner it is treated the greater the chance of success. *Delay may make all the difference between success and failure.*

"Fortunately, the form of cancer which is the most curable by operation, so that it will not recur, is cancer of the skin.

"It is, therefore, very important to keep the skin healthy and the pores of the skin open. The only way of keeping the skin healthy is by frequent washing with soap and water. The scrotum needs it as much as any other part. If this were done throughout life the trouble probably would not occur."

We are informed that 12,500 copies of the leaflet have been issued to the staff for distribution in factories in which tar is used and that it has been reproduced substantially in a leaflet issued by the Amalgamated Association of Operative Cotton Spinners and Twiners which has been twice distributed to the 30,000 mule-spinners in Lancashire.

## THE REWARDS OF MEDICAL DISCOVERY.

As our readers know, Sir Ronald Ross has long held that those who make important discoveries in medicine should receive ample pecuniary recognition from the State, preferably in the form of life annuities. He returns to the matter in the January number of *Science Progress*, and urges that part of the rather considerable sums which are now spent on encouraging research should be devoted to rewarding discoveries which have been made. In theory the proposal is so sound that it is difficult to find anything to say against it. If anyone would discover the cause of the common cold or of muscular rheumatism to be such that the knowledge gave us the means of preventing these appalling diseases, it is not extravagant to think and even to say that the State should give the discoverer anything he wanted, at any rate up to the level of dukedoms, palaces, and princely fortunes. And the man who found out how to prevent a disease such as pernicious anæmia, which by comparison produces a negligible amount of human suffering, might well have £1000 a year for life or something of that order.

The principle is sound enough; the difficulties arise only in its application. In the first place, who is it that discovers anything? Discovery is a process, not an event. The man who periodically steps out into the limelight and tells people about it and persuades them that there is something in it is only one of the links in a chain that had no beginning and will have no end. It is true that some of these links are very conspicuous and much more important to the advancement of knowledge than the average. There is, too, a good deal in the proposal that the truth and value of any theory is in proportion to the degree to which it opens up fresh fields to the imagination; this it will not do unless it wins pretty general assent, so that a higher place is rightly given to Darwin for making everybody think about natural selection than to the gentleman who anticipated his ideas in an appendix to a book on ships' timbers. But at the other end of the scale we have medical discoveries of the greatest moment for which it would be quite impossible to honour any individual by any method of selection more just than drawing names out of a hat. If the children who live by the reduction of infantile mortality in the last 15 years wanted to put up a monument to their preserver, they could not get much nearer than an Epstein panel. And in the second place, if it is possible in some instances to define discoverers, who is going to have the courage to define them and value them against one another? It might be done moderately well by a body as detached and remote as the Nobel Prize Committee but hardly by anyone nearer home. Perhaps the League of Nations would undertake it.

Such are a few of the more obvious practical difficulties. It is possible that they might in some degree be evaded and that some discoverers might be pleased, and more supposed discoverers more pleased, without the rest being dissatisfied beyond toleration. But we think Sir Ronald Ross is almost wholly wrong in thinking that such a system of rewards would "encourage" medical discovery. The synthetic idea which is nearer the common notion of original discovery than anything else generally comes by way of revelation, and like other revelations it comes to people who are not particularly looking for it. One man may by nature be more receptive than another and training may increase his sensitivity to some extent. But it seems scarcely reasonable for anyone to embark on a search for a revelation because it may be worth £10,000; there is no evidence that they are to be had that way.

## CATALOGUE OF HUMAN PROTOZOA.

TWENTY-FOUR years ago there appeared the first part of one of the most useful and comprehensive biological bibliographies which have ever been planned—namely, the "Index Catalogue of Medical and Veterinary Zoology," by Prof. C. Wardell Stiles and Mr. Albert Hassall. Begun under the auspices of the Bureau of Animal Industry, United States Department of Agriculture, the first section, comprising 35 parts, was completed in 1911. Running to over 2700 pages, it furnished a complete list of all published books, papers, articles, &c., dealing with medical and veterinary zoology, together with references to all reviews, critiques, and abstracts of these, arranged under the names of the various authors. The second, or Subjects, section of the Catalogue appeared from 1908 to 1920 as a publication of the United States Public Health Service and has, so far, dealt with the various species of parasitic worms hitherto found in man, in domestic stock, and in all other animals. In this section are to be found records of references to every known species of parasitic worm. The first part of the third section, or host catalogue, has recently been published [1] in the form of a small fascicle of 93 pages, and deals with the species of protozoa which have from time to time been recorded as parasites of man. In its original design it purported to be a guide for use by the class of medical zoology in the Hygienic Laboratory, but its scope is actually much more extensive than that and, indeed, it will prove a much-prized addition to the library of the specialist. Prof. Stiles needs no introduction to the circle of English zoologists, for his name has long been well known for his persistent efforts to stabilise modern zoological nomenclature. For the most part the entries in the Catalogue do not diverge much from the teachings of standard English text-books. The generic name of the parasitic amœbas is, however, written *Endamœba*, not *Entamœba* as so frequently occurs, and the valid species are given as *coli*, *histolytica*, *gingivalis*, and *muris*. The *Flagellata* and the *Sporozoa* are treated more or less according to rule, and we find the *Spirochætacea*, or spirochætes, included as a subdivision of the flagellates. The classification of the spirillar organisms has always provoked much debate, the trend of which is impartially indicated. The malaria parasites receive full consideration, and special attention is devoted to the somewhat difficult classification of the *Piroplasmidæ*. Not the least interesting section of the work is the last, entitled "Protozoa, Miscellaneous," amongst which we find such entries as *Chlamydozoa* (*vera* and *strongyloplasmata*), *Protobios*, *Rickettsia*, *Unicellula* and others which have in recent years become prominent in connexion with the study of cancer and the filtrable viruses.

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[1] THE LANCET, Jan. 16th, p. 153.

[1] Key Catalogue of the Protozoa Reported for Man. Hygienic Laboratory Bulletin, No. 140, Treasury Department, United States Public Health Service, Washington, D.C. 1925.

## REPAIR OF THE URETER.

WHEN a segment of a ureter has been removed, either by accident or by operation, and the ureter can be neither implanted into the bladder nor united end-to-end, is there any method by which the urine can be conducted into the bladder? Dr. L. L. McArthur[1] reports a case in which he applied, with success, to the ureter the method which he has employed for the common bile-duct. The left ureter had been divided eight months previously by a severe blow which also fractured the left three lower ribs and the left transverse processes of the second and third lumbar vertebræ. The result was a lumbar urinary fistula. At operation the ureter was found divided 2 inches below its upper end. The ureteral ends were 1 inch apart and could not be brought into apposition. Dr. McArthur describes his technique as follows: A longitudinal slit was made in the side of the proximal portion of the ureter, sufficiently long to admit two catheters. One of these, a rubber urethral catheter, was inserted upward to the renal pelvis; the other, a ureteral catheter of good size, downward so as to pass out of the cut end of the renal portion and bridge the gap to the cut end of the vesical portion. The two cut ends of the ureter were then approximated as closely as possible by absorbable stitches. The catheters were then brought to the surface and permanently secured to the skin by stitches or other device. The urine from that kidney was thus diverted from the field of operation during the time of epithelisation. The body tissues were thus able to heal around the catheter bridging the gap between the renal end and the vesical end, the catheter simply remaining in situ until, in the judgment of the operator, an epithelial lining had had time to grow between the ends. Dr. McArthur does not claim to have determined the length of time required for epithelisation. In the case recorded, after the catheters had been placed in position, the gap between the ureteral ends was diminished by sutures to ½ inch. At the end of nine weeks both catheters were removed, when no further urine escaped from the wound, which healed immediately, the quantity of vesical urine being doubled at once. Nineteen months after operation the patient was well in every respect. Dr. McArthur considers a fascia transplant to be unnecessary for epithelisation of the gap, and believes that epithelium grows from each end of the divided ureter and lines the tissues surrounding the portion of catheter which bridges the gap. No mention is made of the possibility of ultimate stricture at the site of the gap.

## INSULIN DISAPPOINTMENTS AND HOPES.

THOSE who hoped that the administration of insulin to a diabetic might lead to the cure of the underlying disease are apparently to be disappointed. As a result of observations lasting from 11 to 18 months on five selected cases of diabetes mellitus, no evidence has been obtained by Dr. G. A. Harrison[1] of even a partial remission of the disease. The daily intake of carbohydrate, protein, fat, and calories remained fixed throughout. The dose of insulin was adjusted to the fixed diet according to the results of estimation of the blood-sugar content. All five patients needed as much or slightly more insulin at the end of the period of observation. Such fluctuations in dosage as occurred are considered to be due to the difficulties in balancing the dose accurately against the diet, to increase in metabolically active tissue, and to variations in the strength of different batches of insulin. Using the same batch of insulin, on a fixed diet, with the patient's daily routine kept as regular as possible, the blood-sugar curve remained remarkably steady. Every now and then, on changing over to a new batch of insulin, a patient suddenly appeared to relapse, or, on the other hand, suddenly developed hypoglycæmic symptoms. Simultaneously, the blood-sugar curve rose or fell. These differences between batches were much less noticeable in 1924 than in 1923, when the methods of standardisation were in their infancy. During the last six months of the investigation (September, 1924, to February, 1925) all these special patients were treated by the same batch of insulin, which arrangement Dr. Harrison describes as a great boon to the patients and to himself. He recognises that every possible care and skill has been exercised to standardise insulin, and notes that since the spring of 1925 successive batches have appeared to be of more uniform strength. This period probably corresponds with the use of the new comparative method of assay devised by Mr. Marks, of the National Institute of Medical Research. It is stated in the recently published report of the Medical Research Council that further experience with this method has confirmed its value. Quantitative clinical tests by Dr. Harrison and Dr. R. D. Lawrence on volunteer patients, compared with the laboratory findings, are said to show a correspondence so satisfactory as to warrant the conclusion that the rabbit test in the form devised by Mr. Marks is, if carefully performed, capable of detecting any difference of activity which the most elaborate clinical observation could discover, and that a supplementary clinical test ought not to be required. This is very reassuring, especially since the National Institute of Medical Research has accepted, at the request of an International Conference, the duty of preparing and keeping the international standard of reference of insulin. A large supply of insulin, received from institutes and manufacturers in different countries, was purified and converted into the form of a dry, stable hydrochloride. Simultaneous determinations were made in five laboratories in the United States of America, Canada, and this country, the results varying only from 8·4 to 8·8 units per milligramme of the dried preparation. As a result, the International Conference decided that this preparation, preserved at the National Institute, should be the international standard for insulin, and that one milligramme thereof should be taken to contain eight units of insulin. Samples of this standard have already been supplied from the Institute to the responsible authorities in 10 countries. It may be hoped that we have now reached the stage when a diabetic, even if condemned to a constant dosage of insulin, may travel abroad without fear of being unable to obtain a preparation exactly corresponding to that which keeps him well at home.

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[1] Surgery, Gynecology, and Obstetrics, December, 1925, p. 719.

[1] Quarterly Journal of Medicine, January, 1926, p. 223.

## THE UNIVERSITY OF LEEDS.

WE published in October of last year an appeal made in behalf of the Medical School of Leeds University, and the close association of the school with men whose names will ever be eminent in the medical profession made a favourable reception certain. In the same issue (Oct. 17th, 1925, p. 821) will be found a sketch of the growth of Leeds University enumerating the leading points of a striking history of development. We have received this week from a correspondent in Leeds the following plea for the University in supplement of the appeal made last October, and showing the success which has already crowned the efforts made :—

"To anyone who has had the opportunity of observing the development of the University of Leeds the present appeal for the large sum of half a million pounds will appear fully justified. The Yorkshire College of Science, widened in its scope by the formation of a department of arts and simplifying its title to that of 'The Yorkshire College,' became ripe for university status in virtue of its amalgamation with the School of Medicine, and it was in fact admitted as one of the three constituent colleges of the Victoria University in 1887. Into the changes which have led to the founding of the independent University of Leeds it is not necessary to enter. Leeds was indeed opposed to the disruption of the University, but no one can now for a moment have any hesitation in saying that the establishment of three independent universities in place of the old federal university has been the best thing for each of them.

"Many important landmarks have been passed by the Yorkshire College of Science, by the Yorkshire College—both before and after its becoming a part of the Victoria University—and by the University of Leeds, since the first-named of these began its work in temporary premises while the first portions of the permanent buildings were being put up on the site that is now so fully covered. The amalgamation with the school of medicine and the formal opening of the College buildings by the late King when he was Prince of Wales was in a few years followed by a great effort which resulted in the building of the new Medical School and the provision of a library and of the great hall of the University. These were opened in 1894 by our present King when he was Duke of York. The University was also honoured by a visit from King Edward in 1907 when some new laboratories were opened.

"The more urgent necessities of the University are as follows: The provision of a first-class library—the present accommodation for books being quite inadequate—larger and better lecture theatres, and, above all, a great extension of laboratory accommodation. The Medical School which was the expression of so much thought and care—and no one who saw it develop can forget the great work done by Mr. Scattergood, who was Dean of the Faculty of Medicine at the time it was built—is now too small, though it is satisfactory to note that very little alteration or scrapping has been required. It is clear, however, that the great development of the pathological department calls loudly for a separate pathological institute in immediate relationship with the present school buildings and with those of the infirmary. By arrangement much of the pathological work of the infirmary is carried on in the laboratories of the infirmary by the staff of the University under the direction of Prof. Stewart, who is also honorary pathologist to the infirmary. The provision of a pathological institute or block will be one of the first things undertaken under the new scheme.

"Though the appeal was launched as recently as last October at a public meeting presided over by the Duke of York, promises have already been received for £262,000. One donation calls for special comment. In connexion with the formation of a Cancer Research Centre for Yorkshire a luncheon was recently given to a representative gathering of ladies and gentlemen of Leeds and of the county by Lord Lascelles. At this luncheon Lord Lascelles was able to announce that he had received promises of £23,000 towards the project. Sir Algernon Firth then announced that his donation of £5000 which he had promised to the University Appeal Fund was to be increased to £25,000, which he was to give to the University through the Yorkshire Council for Cancer Research, on the understanding that this was to go towards the provision of a pathological institute as a part of the University with special laboratory accommodation for persons engaged in cancer research. The generosity of Sir Algernon Firth therefore ensures the very early realisation of a great hope which has been in the hearts especially of the members of the Faculty of Medicine, but which also has been an aspiration on the part of the present Vice-Chancellor and of his predecessor. Stimulated by the action of Sir Algernon, many offers of assistance came in at once and at the end of the meeting Lord Lascelles was able to announce that his promises had passed £30,000. Thus the Yorkshire Cancer Research Centre makes a good start with £55,000 towards the £75,000 which has been mentioned as the minimum required to carry on the work efficiently."

We referred last week to the magnificent generosity of Sir Algernon Firth in connexion with the Yorkshire Cancer Campaign. Such instances of individual generosity will in the end enable the evasive problems of cancer to yield their secrets—that is our assured belief. The fruits of intensive research may as yet be small, but not only are they real but they are full of broad promise.

## REVEALING UNKNOWN LONDON.

THE healthy human body is unconscious of most of its functions; the majority of its processes go on quietly without supervision or report. In the same way the healthy city shows little evidence of those activities which maintain its health, and it is only on the rare occasions when there is a failure of water-supply, an overflow of storm water, or an epidemic of food poisoning that the average citizen remembers (usually without enthusiasm) that reservoirs and drainage and sanitary inspectors do, in fact, exist. Huxley was accustomed to say that deep breathing and a stomach of which one was never conscious were the best equipment for life, and many right-minded Londoners will apply the statement to fresh air and drainage. Nowadays, however, it is felt that the more a man considers his colon the more healthy he will be, and it is not surprising that the London County Council, tired of receiving kicks instead of halfpence, should insist on London having an elementary knowledge of its main drainage. In a series of booklets the Council is justifying its existence to the ratepayer, who does not know where his money goes and has no idea how carefully he is looked after, and the latest of an attractive series entitled "What the L.C.C. does for London" is devoted to public health.[1] The booklet is exactly what is required; it is simply written, well illustrated, and thoroughly interesting. A map of the tremendous sewerage system of the county adds greatly to the fascination of unknown London, and the section of the book which describes the main drainage is pleasantly instructive. It is stated, in a summary, that in 1889 the daily discharging capacity of the outfalls under the Board of Works was 688 million gallons, and of the storm relief pumping work 30 million gallons. The Council in that year took over the management of main drainage and has increased these figures by 814 million gallons and 817 million gallons respectively, so that the total capacity is now over 2349 million gallons, as compared with 718 in 1889. This figure is being still further increased. The daily average quantity of sewage flowing to the outfalls is about 250 million gallons, which is equivalent to a stream 20 feet wide and 5 feet deep flowing continuously at a rate of three miles an hour. A total of about 100,000 million gallons of sewage is treated each year at the Barking and Crossness stations, and over 2 million tons of sludge are also dealt with. The fleet of vessels, so familiar to travellers on the river, which conveys the sludge out to Black Deep, 12 miles off the Essex Coast, is being reorganised and will comprise four steamers of 1500 tons capacity and one of 1000 tons.

The other activities of the Council—those of an active and enlightened health authority—are mostly familiar to our readers, and it is unnecessary to mention more than one or two as examples of their results. Under the heading of Medical Inspection and Treatment we learn that in 1924 the proportion of school-children requiring treatment was 30·7 per cent. compared with 44 per cent. in 1918. Children suffering from lack of nourishment accounted for 5·9 per cent.

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[1] The London County Council and what it does for London: Public Health. London: Hodder and Stoughton, Ltd.; University of London Press, Ltd. Pp. 35. 6d.

of these, compared with 12·8 in 1913; 17 per cent. more children leave school to-day with sound teeth than in 1913, and the proportion of children with defective hearing has been halved during the past ten years. At a time when there is much misinformed public opinion on medical subjects it is gratifying to find so instructive a work issued for the education of London's citizens.

## MYOPE CLASSES.

THE report of the Council of British Ophthalmologists, a body representing the ophthalmic branch of the medical profession in Great Britain, which we print in another column, should be studied by all members of education authorities. A certain proportion of the children in our schools, without being blind, see so badly that they are totally unfitted for the ordinary school curriculum of book and desk-work. A number of these owe their defect to corneal nebulæ resulting either from corneal disease or from interstitial keratitis. Others have already become so myopic that even during school life they must be treated as partially blind. A much larger proportion of myopes, when appropriately corrected with glasses, see quite well enough to join the other children in the ordinary classes, but in their case, when the myopia reaches a certain degree, although visual acuity may remain good, it is not in the interests of the child to continue his or her education in the ordinary way because it has been proved that to do so may be prejudicial to his eyesight when he gets older (cf. THE LANCET, 1924, i., 907). For the sake of these different classes of children the London County Council so long ago as 1908 opened the first "myope school," but as the report says, it has been found that the best interests of these children are served if such classes are held in association with elementary schools where the oral teaching and physical exercises given in the ordinary classes are available. Unfortunately, the number of places in these myope classes is as yet by no means adequate to the need. Even in London, which takes the lead in this respect, there is only accommodation for 915 children, and in the rest of the country the supply is almost negligible. The reason for this, no doubt, is twofold—that such classes require special training in the teachers and that they must be limited in size, the maximum number recommended being 20. Both these essentials involve extra expenditure, and as we have been recently reminded, the present is not a time when such demands are likely to meet with a ready response. Nevertheless, the importance of the subject fully justifies the Council of British Ophthalmologists in recommending that in all large centres of population such special classes should be established, and further, that special instruction should be given to teachers and parents on the education and management of children with defective sight.

## COLLECTED PAPERS FROM THE LONDON SCHOOL OF TROPICAL MEDICINE.

WHEN the London School of Tropical Medicine became the Tropical Division of the new School of Hygiene, founded in 1924, it was decided to continue the "Collected Papers" of the older institution in a slightly altered form, and the first volume[1] has now appeared. It is under the same able editorship as the "Collected Papers" and consists of two parts, one containing addresses of a more or less general character delivered from time to time by the Director, Dr. Andrew Balfour, and the other 35 laboratory studies reprinted from various professional journals. The charm of the Director's style is well known and it is pleasing to have seven of his essays gathered here together. In the first, "New Conceptions in the Teaching of Public Health," he takes as his text a Chilian address wherein England is cited as "the cradle of hygiene," and reviews the changes in the hygienic outlook during 30 years and the aims of the new school. In his discourse before the Royal Institution that accompanied the Rockefeller cinematograph film he weaves a fairy tale from the history of malaria, tracing its destructive course from the night when "the angel of the Lord . . . . smote in the camp of the Assyrians an hundred and fourscore and five thousand," to the time when the enemy met its defeat at the hands of Ross and Manson and, still later, was harnessed to the chariots of its victors by being used as a therapeutic agent in the treatment of general paralysis. His third lecture makes live even the dry bones of the Provisional Scheme for the Diplomate in Public Health, while his fourth is a general survey—both historically and geographically—of "The Trend of Modern Hygiene." In "Vistas and Visions" he essays to attract Glasgow students to the colonial medical service by sweeping them on a magic carpet over the whole of the British Empire and giving them glimpses of the problems still awaiting solution. Into this journey he infuses a thrill and a romance that many a novelist might envy. "A Bit of the Bog" describes a journey through the Sudanese province of Bahr-el-Ghazal, while the last essay deals with the justification for the term "tropical disease."

The original papers reproduced in this volume have all been printed before, but it will be useful to the research worker to have them collected in one volume. Of particular interest to public health workers in this country are the papers by Dr. E. Hindle and Major H. C. Brown on Spirochætal Jaundice in Great Britain.[2] Mr. T. W. M. Cameron's article on Parasitic Diseases in Pigs and their Prevention, Colonel A. W. Alcock on the Anopheles Mosquito in England,[3] and Dr. Hindle on Leptospira in London Waters.

## A FACIAL REFLEX.

Dr. Filippo Modonesi, of the Ospedale Maggiore, at Bologna, published[4] as far back as 1905 a description of a facial reflex which may be of importance in the diagnosis and prognosis of cases of severe apoplexy. In such cases where there is deep coma the relaxation of the whole body and abolition of motor reaction do not permit us to ascertain which is the paralysed side, especially as the ordinary symptomatic reflexes may be absent. The reflex consists in contraction of the facial muscles of expression caused by pressure on the bulbus oculi. Even in conditions of coma this "bulbo-mimic" phenomenon persists for a long time, and may be evoked when other means of exciting motor reactions fail. Compression of the ocular bulb is a convenient method, and one which may be graduated at will to act on an extensive terminal zone of so sensitive a nerve as the fifth. When in cases of coma the bulbo-mimic reflex is present on one side while it is found wanting on the other, we are justified in admitting an organic lesion of the opposite hemisphere. On the contrary, the persistence of the phenomenon on both sides serves as a means of differentiating other comatose conditions, such as uræmic, diabetic, or toxic, from those which accompany a circulatory lesion of one hemisphere. Only in very rare cases of profound coma is there found complete loss of motor reaction to compression of both bulbs. This reflex phenomenon is in some measure analogous to cortical reflexes, for when the coma disappears and the deep reflexes reappear, the bulbo-mimetic phenomenon remains abolished or diminished analogous to what happens in the normal cutaneous reflexes or the hemiplegic side. The bulbo-mimetic reflex described by Dr. Modonesi is useful as a clinical sign for the early diagnosis of hemiplegia and for determining the site of circulatory disturbances of the brain in comatose conditions, distinguishing them from uræmic and diabetic coma, and also as a prognostic sign of grave significance in bilateral absence of the phenomenon. It may further serve as a useful sign as evidence of a peripheral paralysis in subjects in whom the ordinary method of investigation is not easy, as in the insane or alcoholic, and in children. Dr. Modonesi's publication of his observation of the bulbo-mimetic reflex preceded for some time that of other similar reflexes by Pierre Marie and C. Foix. In the latter's "Signe de la Face" the reflex action of the muscles of expression is obtained by pressure, not on the globe of the eye, but on the ascending branch of the occipital nerve. In each instance it would appear that a contraction of the facial muscles is produced by pressure of a painful character, and the two reflexes are not integrally different.

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[1] Collected Addresses and Laboratory Studies of the London School of Hygiene and Tropical Medicine. Vol. I., 1924–25. Compiled by R. T. Leiper.

[2] Reprinted from THE LANCET, 1925, ii., 372.

[3] THE LANCET, 1925, ii., 34.

[4] Bullettino delle Scienze Mediche, Bologna, 1905, lxxvi., ser. viii., vol. v.

## PURU.

The specific infective disease caused by the *Treponema pertenue* is most commonly known by the name applied to it in Africa, yaws or frambœsia, but it also occurs in other parts of the world under various designations. Thus in Ceylon it is called "parangi," in Fiji "coko," in the Pacific Islands "buba," and in the Federated Malay States "puru." The committee for public health education of Malaya has recently issued a pamphlet[1] on the disease, written by Dr. A. Viswalingam, with the object of encouraging close coöperation between public health workers and the general public in that part of the world, so that this intensely crippling disease may be eradicated. It is estimated that 60 per cent. of the natives suffer or have suffered from the disease which afflicts all ages, but is more prevalent in childhood, and particularly abounds in insanitary country districts where the filth and general unhealthy conditions favour the occurrence of the disease. Spread by sexual intercourse is apparently very uncommon, the more usual course of events being the entrance of the spirochæte through trivial wounds and abrasions on exposed parts. The incubation period varies from a few weeks to months, and the initial lesion is found at the site of infection and consists of a granuloma which arises in the deep tissues of the skin. A more characteristic initial lesion is the occurrence of one or more small papules which increase in size and secrete a viscid yellowish discharge. The second stage consists of eruptions which appear in successive crops and may last for years. Small granulomata appear some weeks or months after the parent sore and are accompanied by an irregular fever. Discrete forms are common in older and confluent forms in younger people. Pitted sores upon the feet are very common, and great thickening of the skin and bones of the arms and legs also occurs. The third stage consists of an exfoliative dermatitis of the palms and soles which may go on to a more severe thickening and fissuring, while the skin loses its pigment in patches. Treatment by salvarsan and its derivatives gives excellent results, as is shown by the photographs accompanying Dr. Viswalingam's monograph. Similar results were obtained by Dr. Winckel in Java, as our Berlin correspondent reported last week. The Federated Malay States Government has placed salvarsan within the reach of all sufferers. The question of prevention is largely bound up with matters of personal and domestic cleanliness, and measures are being undertaken to eradicate the disease by hygienic means. Dr. Viswalingam points out that some of the failure to curtail the disease in the past has been due to its being confounded with such other diseases as lupus, leprosy, and syphilis. He emphasises, however, that its symptomatology renders it a distinct disease, but it is unfortunate that in his otherwise excellent account of "puru" he makes no mention of the Wassermann reaction which other observers have found consistently positive in African "yaws."

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[1] The Puru of Malaya: its Treatment and Eradication. London: John Bale, Sons and Danielsson. 1925.

## CHORDOMA.

The occurrence in relation to the vertebral column of tumours derived from notochordal tissue was clearly established by Ribbert in 1894. They are rare, but probably not as rare as they seem, for a certain number are doubtless unrecognised and unrecorded. A comprehensive account of the condition in the January issue of the *Journal of Pathology and Bacteriology*, by Prof. M. J. Stewart, of Leeds, and Dr. J. E. Morin, summarises what is known in a useful way and should lead to the identification of further examples; once it is known, the tumour may often be recognised at first sight. It occurs chiefly in situations corresponding to the ends of the notochord, *i.e.*, in the neighbourhood of the spheno-occipital synchondrosis and in the sacrococcygeal region, about equally in each; only 3 cases out of 57 have been described in other places. More frequent in males than females, cases have occurred at ages from 16 to 72, the age of the sacral cases being distinctly the higher. It is usually of low malignancy, slowly infiltrative and destructive, especially of bone, and generally without metastases. The head cases give the symptoms of a slowly growing tumour of the base of the skull—headache, giddiness, failure of sight, cranial nerve palsies, &c. The sacrococcygeal cases suffer at first mostly from pain, and later pressure on nerves may give various motor, sensory and trophic disturbances in the legs; if the tumour extends mostly inwards pressure on the bladder and rectum may be very troublesome, if mostly outwards a characteristic external tumour appears and slowly extends. Anatomically the tumour is well encapsuled and divided into lobules by fibrous tissue trabeculæ; the substance is composed of translucent whitish or bluish gelatinous material, rather like a colloid cancer, which in the later stages may become almost liquid. The more malignant examples are more solid, firm, and opaque. Histologically the younger, more cellular areas have a solid epithelial aspect, alveolar in arrangement; in older parts the abundant cytoplasmic vacuolation produces the remarkable bladder-like physaliphorous cells and a sort of vacuolated syncytium, while the mucinous fluid which is formed at first cuts up the cells into columns and later forms a lake in which only a few scattered cells are visible. The microscopical structure is in this way rather various in different cases and in different parts of the same tumour, but it seems always to be recognisable. Prof. Stewart also deals shortly with the heterotopic notochordal tissue found about the dorsum sellæ—the "ecchordosis physaliphora spheno-occipitalis"—which is not so very rare if it is looked for, and which, with similar misplaced notochord in the sacral region, may possibly be the origin of chordoma. The paper gives a detailed account of the third example which has been met with in Leeds in recent years, and is followed by a description of an Edinburgh case by Drs. W. A. Alexander and J. W. Struthers. Others will doubtless turn up as the condition becomes more familiar.

## INDEX TO "THE LANCET," Vol. II., 1925.

The Index and Title-page to Vol. II., 1925, which was completed with the issue of Dec. 26th, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of The Lancet, 1, Bedford-street, Strand, W.C. 2. Subscribers who have not already indicated their desire to receive Indexes regularly as published should do so now.

North Wales Mental Hospital.—The number of patients in the hospital is 1061. Of these, 935 are rate-aided cases, and the average weekly cost of maintenance during the past quarter was 19*s*. per head. The medical superintendent, Dr. Frank Jones, reports that the recovery-rate was maintained at a high level—51 per cent. for the last quarter, as against an average for similar institutions of 30 per cent.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLVIII.—THE TREATMENT OF SALPINGITIS.

### II.—CHRONIC SALPINGITIS.[1]

CHRONIC inflammation of the Fallopian tube, always associated with ovarian inflammation, may be of gonococcal, streptococcal, or tuberculous origin. Labour or abortion invariably precedes the streptococcal inflammations, but so long a time may have elapsed since pregnancy occurred that it is often overlooked as an ætiological factor. Whereas in the gonococcal cases a history of an acute attack some time previously is usually obtainable, in streptococcal cases this is usually not so, the course of the disease being insidious and chronic from the beginning. Tuberculous salpingo-oöphoritis is essentially a chronic condition, and only gives rise to acute exacerbations if secondary infection (usually of intestinal origin) occurs.

Whatever the organism may be, patients suffering from chronic salpingitis are semi-invalids, getting about with difficulty, always suffering from more or less pelvic pain, backache, dysmenorrhœa, menorrhagia, and especially dyspareunia. Examination usually reveals ill-defined pelvic swellings, on either side of or behind the uterus, having no characteristic shape, but invariably leading to more or less fixation of the uterus, which may be anteverted or retroverted. The fixation is a characteristic feature, and attempts to move the uterus in any direction always produce acute pain. This is perhaps the most important sign of chronic salpingo-oöphoritis. Tuberculous salpingitis can rarely be diagnosed clinically, unless it is associated with a general tuberculous peritonitis and ascites.

*Palliative Treatment.*

That many cases settle down and cease to cause important symptoms under palliative treatment is certain; for it is not uncommon, when operating for other diseases in women past middle age, to find tubes and ovaries fixed by adhesions, the former even containing pus, the result of a long obsolete salpingo-oöphoritis. The presence of pus in the tubes can rarely be diagnosed with certainty in essentially chronic cases, but where acute exacerbations occur—associated with fever, abdominal rigidity, and leucocytosis—pyosalpinx is probable. Even then the pus is invariably sterile, the acute exacerbations being due to secondary peritoneal infection via the intestine. Thus it happens that palliative treatment is often quite properly applied in cases even where the tubes may contain pus. Incidentally it may be remembered that intraperitoneal rupture of a chronic pyosalpinx is an exceedingly rare accident and its possibility may properly be disregarded. The reason for this is that a chronic pyosalpinx usually has very thick walls and is encapsuled by adhesions. Where a tuberculous origin is suspected—for example, in single women, in whom gonorrhœa can be excluded and pregnancy has never occurred—palliative treatment should not be adopted. The sooner a tuberculous tube is removed the better for the patient. The tuberculous inflammatory process has a great tendency to spread through the wall of the tube and to invade any adherent structure such as the small intestine or pelvic colon. If bowel is involved in the tuberculous process, removal of the tube always means damage to the bowel and subsequent rupture causing a fæcal fistula. Fæcal fistula follows removal of a long-standing tuberculous tube more often than any other operation, except that for a gangrenous appendix. The palliative treatment of salpingo-oöphoritis in general usually demands counter-irritation, and means directed towards the absorption of inflammatory products. Counter-irritation is best applied by vaginal applications of substances which have an affinity for water and set up a discharge from the cervix. In practice glycerine and ichthyol are the only substances of value. Glycerine may be applied to the vaginal roof on tampons of absorbent wool at night, whilst ichthyol is best used in the form of vaginal suppositories. Ichthyol, gr. xii., in cacao butter, gr. cxx., forms a convenient suppository. A hot plain water douche at 112° to 115° F. should first be given slowly so as to induce hyperæmia, and then the suppository passed up to the vaginal roof and left in all night. In the morning discharge and *débris* should be washed away with another plain water douche. Alternate nights for a fortnight is sufficient for this treatment, a week being allowed to elapse before repeating the course. If two courses of a fortnight do not produce decided relief from pain, it is generally useless to persist any further with palliative treatment. In combination with ichthyol treatment, radiant heat to the abdomen is often of great value. A home-made apparatus for this is easily contrived by making a cradle to cover the abdomen with two carbon filament electric lamps suspended in it. The amount of heat applied in this way can only be determined by experiment for each individual patient, since tolerance varies. The value of ultra-violet rays in these cases has yet to be determined, but it might be expected that benefit would ensue. X rays have been used and good results have been recorded. Given sufficient dosage to produce an effect, any benefit resulting is probably due to abolition of the ovarian functions and the sterilisation of the patient. Since most of these patients are already incurably sterile from closure of the tubes and disorganised ovaries, this is not a calamity. The abolition of menstruation might even be of advantage in that in most cases severe pre-menstrual pain occurs. On general grounds it is advisable that X rays should not be used in cases believed to be suffering from pyosalpinx, but should be reserved for non-suppurative lesions.

*Drugs* given internally have very little effect apart from the temporary relief of pain. Morphia, heroin, omnopon, nepenthe, in fact, any drugs containing opium derivatives, should be avoided owing to the danger of contracting a habit of taking them. Bromides are always valuable, whilst antispasmodic drugs like phenazone, especially combined with sal volatile, will often relieve pain. For menorrhagia it is best to rely on calcium lactate by the mouth, given in the form of a freshly prepared nascent solution. A mixture of pure lactic acid, gr. 200 by weight, with 75 gr. of precipitated chalk in ℥ viii. of chloroform water, gives a solution which contains 30 gr. to the ounce of calcium lactate; one ounce to be given every other night for a fortnight at a time.

*Operative Treatment.*

Although some of these cases will be permanently relieved by this treatment, the majority will prove intractable and operative treatment will have to be adopted sooner or later. This will always mean an abdominal section and removal of the affected organs. Conservative surgery must be adopted as far as possible to produce a symptomatic cure. In young women, where pre-menstrual pain is not complained of, a tube, ovary, or parts of them should be saved, if not too much damaged, in order that menstruation may be retained and the possibility of a future pregnancy not abolished. These operations are often very difficult and trying to the surgeon, but are rarely of great danger to the patient. As they are performed when active infection has disappeared, there is very little risk of general peritoneal infection even if a pyosalpinx is ruptured during removal, which, it must be admitted, is a common occurrence.

*The Risk of Damaging the Bowel.*—Very widespread adhesions will be encountered and the risk of damaging bowel during the separation of adhesions must always be borne in mind. Adhesions should be divided with the knife or scissors wherever possible, rather than

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[1] An article on the Treatment of Acute Salpingitis by Mr. Stevens appeared in the previous issue of THE LANCET.

forcibly torn with the fingers. It is better to cut into the wall of a pyosalpinx and leave a fragment adhering to bowel than to risk opening the bowel by forcible separation of a firm adhesion. In tuberculous cases the risk of bowel injury is much greater than in any other type, and however carefully the operation is performed fæcal fistulæ will sometimes occur. In such cases the bowel may not actually be opened during the operation, but being infiltrated with tubercle may be so damaged that it perforates later. A fæcal fistula into the rectum or pelvic colon is not of so much importance, as it usually heals within two or three weeks, but a small intestine fistula is a tragedy as it may show no tendency to heal at all. When damage to the small intestine is recognised at the time, it is better to excise the damaged segment and do an end-to-end anastomosis or lateral anastomosis according to the situation of the lesion.

*Drainage.*—When the tubes contain pus and rupture occurs during removal the question of drainage has to be considered. If there is any doubt as to the infectivity of the pus the pelvis must be drained, preferably through a stab incision two inches away from the median incision, near the anterior superior iliac spine. In cases of long-standing in which the pus is certain to be sterile, drainage is unnecessary, but it is certain that in any doubtful case drainage makes for safety, and in general does no harm. As a rule 48 hours is sufficient for a large drainage-tube to be left in the pelvis, after which time it should be removed and a short length (half an inch longer than the thickness of the abdominal wall) of smaller tube substituted for another 48 hours.

*After-treatment.*—With regard to after-treatment I am convinced that early purgation prevents distension and makes for the comfort of the patient. Hence it is my custom to give calomel, gr. iii., in one dose 18 hours after the operation, a turpentine enema the evening of the day after the operation, and mistura sennæ composita, ℥iss., the evening of the second day after the operation. The calomel rarely produces an action of the bowels, but in general it starts peristalsis and prevents distension.

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# Special Articles.

## REPORT OF THE MEDICAL RESEARCH COUNCIL, 1924–25.

*(Concluded from p. 197.)*

### RESEARCH SCHEMES IN SPECIFIC SUBJECTS.

AMONG the special investigations being pursued we choose for notice here those whose main purport can be effectively summarised.

### *Problems of Child Life.*

In a series of over 500 infants examined by Dr. J. N. Cruickshank, Dr. J. Hewitt, and Dr. K. L. Couper at the Royal Maternity Hospital, Glasgow, it was found that neonatal death was due to disease or malformation of the child in about 16 per cent., to the complications of labour in about 33 per cent., and to maternal disease in about 50 per cent. of cases. The results of a report upon a series of 100 cases of toxæmia in pregnancy by the same workers indicate that in all forms of toxæmia in the second half of pregnancy there is disturbance of both kidney and liver functions, but the variations within each clinical group are so great that biochemical analyses of the kind made have given little help to prognosis for individuals. The most useful prognostic signs are found to be variations of the blood pressure and their relation to the degree of albuminuria present. The composition of milk in the early days of lactation is being studied by Miss Muriel Bond and Miss S. D. Widdows, working at the London School of Medicine for Women.

The collection of material towards the study of the causation of rheumatism in childhood, mentioned in previous reports, has been completed. Nearly 1000 cases have been examined from various sources, and the material is now being examined by Mrs. M. Forest Smith under the direction of Dr. John Brownlee. The results of an inquiry into the incidence of rickets among children under 2 years of age attending hospitals in London as out-patients will shortly be published. A consecutive series of children was examined at each of three hospitals, a radiograph of the wrist being taken in each case.

At the National Institute for Medical Research the mode of action of ultra-violet light in the prevention and cure of experimental rickets has been studied from several aspects by Mr. T. A. Webster. In confirmation of other workers he has found that practically any sterol-containing foodstuff can be rendered antirachitic by a suitable exposure to ultra-violet light.

### *Nutrition.*

Dr. S. S. Zilva is investigating the chemical properties of the antiscorbutic factor. He has also been superintending the preparation of large quantities of lemon-juice for the stores of the *Discovery* whaling expedition, using the knowledge he has gained of the stabilisation of the antiscorbutic factor. This juice is being tested periodically, and the results will be compared with those of clinical observations made by Dr. Marshall, the medical officer of the expedition. The unsaponifiable fraction from cod-liver oil has been investigated in detail by Dr. J. C. Drummond and others. Results appear to indicate that the active material is represented by not more than 10 per cent., and probably a good deal less, of the unsaponifiable fraction from the active oil. In other words, the quantity of active substance required to enable the young rat of approximately 100 g. in weight to grow is of the order of two millionths of a gramme per day. Dr. Drummond has collaborated during the past year with Dr. O. Rosenheim and Mr. Webster at the National Institute for Medical Research. A series of colour tests have been devised, which it is hoped will form the basis of colorimetric methods of assaying vitamin A value. Already it is possible to compare the value of a number of samples of cod-liver oil by this means in a few minutes and to obtain a result at least as accurate as that given by animal-feeding tests requiring a month or six weeks. The growth-promoting and antirachitic properties exhibited by previously deficient food-mixtures after exposure to the short wave-length radiations of the quartz-mercury-vapour lamp have also been studied, and the activation traced to an effect on the fats present in the food. The substance activated was present in the unsaponifiable fraction, and was found to be of the nature of a sterol. Experiments with highly purified preparations of cholesterol showed that this substance acquires powerful antirachitic properties, and in some cases growth-promoting action, after comparatively short exposure to ultra-violet radiations. The same discovery was announced almost simultaneously by Hess and also by Steenbock in America.

During the past year the Committee upon Quantitative Problems of Human Nutrition have continued to advise and assist both private and official investigators upon various matters within their terms of reference. The section dealing with the diets of agricultural labourers in a report published by Mr. A. B. Hill was supervised by the Committee, and assistance has been given to the Food Section of the Ministry of Health in a study of prison diets. Dr. Major Greenwood, the secretary of the Committee, has undertaken preliminary statistical work for a study of the physical and other characters of the school population which is under consideration by the Medical Department of the Ministry of Education. The Committee have been much impressed by the importance of a reassessment of the food-supply of the country comparable with but more extensive than that prepared for the Food (War) Committee of the Royal Society during the war. So soon as the data are available, the Committee will proceed with this investigation.

Two years ago work was begun in the medical unit of St. Thomas's Hospital under the direction of Prof. Hugh MacLean to ascertain what detrimental effect, if any, excessive protein diet exercised on renal function. Although medical writers are almost unanimous in declaring that high protein diet is harmful in kidney disease, yet it appeared that there is little sound evidence that this is so. Preliminary experiments gave irregular results. Ultimately it was found that the albuminuria and other evidence of renal damage claimed by various investigators to result from high protein feeding was apparently dependent on lack of vitamins or some other essential constituent of fresh food The extreme sensitiveness of the renal system to lack of vitamins was found to be striking, and it was considered probable that attention to this point might be of importance in the general treatment of nephritis.

### *Disorders of the Cardio-Vascular System.*

Under the direction of Sir Thomas Lewis at University College Hospital Medical School, Dr. A. N. Drury has made observations which throw an entirely fresh light upon the manner in which conduction deficiency displays itself in the auricular muscle. Cold, pressure, and increased acidity all depress the rate of conduction in auricular muscle and, if acting in sufficient degree, prevent the impulse from passing. These conduction defects are not due, as previously supposed, to change in the length of the refractory period, but to a phenomenon akin to that which has been described as "decrement" in nerve. The researches open up a new field of observation so far as cardiac muscle is concerned.

Miss E. P. Wolf has completed a series of observations upon local colour changes in skin deprived of its circulation, with particular reference to the nature of the red and white patches which then appear. She has confirmed Krogh's view that the red patches are due to leakage of blood into the skin through anastomoses with bone-vessels and that the white spots are influenced, but not solely, by temperature. Dr. B. Sacks has investigated the effects of intravenous injections of pituitary extracts in man. These act mainly on the capillaries and venules of the skin, producing intense paling of colour. The pallor is unaccompanied by more than a slight rise of blood pressure, but this slight rise is enough to distend the limb passively. It is probable that in man the pituitary body exerts its effects on the arterioles mainly in the visceral region. Dr. R. T. Grant and Sir Thomas Lewis have fully investigated the phenomenon called "reactive hyperæmia" in man. The hyperæmia is that which follows immediately upon the release of an occluded circulation. The reaction is independent of a nervous mechanism, central or local. It is thought to result from the accumulation of slowly diffusible substances, the products of chemical changes in the extravascular spaces. The mechanism is believed to be frequently or constantly in action in normal life and has much in common with that which locally controls the tissue circulation after injury and something in common with the vaso-dilatation which occurs in muscular exercise.

Dr. J. C. Bramwell and Dr. Sylvia K Hickson have been studying the mechanism of production of the Korotkow sounds in man by means of graphic methods. The results suggest a new hypothesis to account for the production of the Korotkow sounds, which seems to explain anomalies in the auscultatory criteria at present adopted for the clinical determination of diastolic pressure.

### *Disorders of the Excretory System.*

Dr. S. L. Baker, at the Middlesex Hospital, has described two cases of obstruction of the renal tubules caused by the excretion of hæmoglobin following the intravascular hæmolysis of transfused blood. Experiments have been made to determine the conditions under which hæmoglobin is excreted, and under which it is thrown out of solution in vitro. The results indicate that with the excretion of hæmoglobin in the glomerular transudate, which, like the blood plasma, is slightly alkaline, renal obstruction is due to the increase of the acidity and salt concentration in the tubules, which causes precipitation of the pigment probably in the form of hæmatin. This would explain the production of intrarenal obstruction in cases of the type described, and also in blackwater fever. A suggestion for the treatment of these conditions is accordingly the production of an alkaline diuresis.

The results of work by Dr. Mona Kirkhouse upon the effects of diuretic drugs show that drugs of this group, though very commonly used in current practice, are of little use in the treatment of dropsy due to nephritis, being unnecessary in mild cases and ineffective in severe ones. In œdema due to heart failure some diuretics can be used with advantage, digitalis for instance when the failure is due to auricular fibrillation, and drugs of the caffeine group when the heart rhythm is regular.

### *Mental Disorders.*

The composition of the committee dealing with this subject, in which the Council coöperate with the Board of Control, is as follows: Dr. Henry Head, F.R.S. (chairman), Dr. Thomas Beaton (secretary), Dr. C. H. Bond, Dr. Henry Devine, Prof. G. Elliot Smith, F.R.S., Sir Frederick W. Mott, F.R.S., and Prof. G. M. Robertson.

Miss L. Fildes continues to receive a whole-time grant for her work at Cambridge on mental defect. Investigations during the year have been directed mainly towards the study of those aspects of deficiency not primarily concerned with an actual lowering of intelligence, that is, towards impulsive and emotional mental factors

Dr. G. W. Pailthorpe, with the permission of the Prison Commissioners, has continued her studies of the psychology, health, and antecedents of women offenders in Holloway Prison. Dr. Philip Cloake, now working in Birmingham, is making an attempt to analyse the lethargic state and to show how this determines many of the mental sequelæ of encephalitis lethargica, while Dr. David Slight, at the University of Edinburgh, is studying the nature of the psycho-galvanic response and its use in the investigation of cases of mental disorder. The results gained from experimental work seem to confirm the belief that the response is essentially due to a change in the skin. Under the direction of Dr. F. Golla, at the Maudsley Hospital, London, Dr. Isabella M. Robertson has been investigating blood change in some conditions of insanity. In the research laboratory established under the direction of Sir Frederick Mott by the City and University of Birmingham, further studies have been made of the basal metabolism of mental patients, and upon variations in the iodine content of the thyroid gland and their possible correlation with mental and bodily conditions.

### *Tuberculosis.*

Work on the value of different oils in the treatment of tuberculosis is being continued by Dr. A. Stanley Griffiths. It has been found that animal oils are more germicidal than vegetable oils, and that the germicidal power of oils is increased by exposure to the sun's rays. Dr. A. C. Inman has made a series of further observations on the complement-fixation test, which bear out his previous conclusion that the test, when positive, is not an index of the activity of tuberculosis.

Preparations of sanocrysin received for testing purposes from Prof. Mollgaard were issued by the

Council for trial to the heads of university clinics in London, Edinburgh, and Cardiff, who are not engaged in private practice. An opinion, perhaps the only opinion, found to be common to the preliminary reports from all the observers was that the drug does exert a specific action on tuberculous tissues. Further clinical trials at other centres have been instituted, and are still in progress. Efforts made by Prof. S. Lyle Cummins to cure rabbits after virulent infection with bovine tubercle bacilli by subsequent treatment with sanocrysin have, so far, failed; nor has it been possible to reproduce in infected rabbits the phenomena of "shock" observed by Mollgaard in calves and by Secker and others in man. The conclusion drawn from experiments made by Sir Almroth Wright is that sanocrysin exerts no direct bactericidal effect upon the bacilli in human tuberculous lesions.

### *Filter-passing Viruses.*

Dr. M. H. Gordon, F.R.S., in the whole-time service of the Council and working at St. Bartholomew's Hospital, London, has continued his studies of the viruses of vaccinia and variola mentioned last year. Advantage was taken of the occurrence of various outbreaks of small-pox (variola) in different parts of the country. Comparison by strict serological methods showed that the viruses from five separate epidemics all gave positive reactions with antivaccinia serum. No difference in this respect could be found between virus from the mild type of small-pox sometimes called alastrim (or variola minor) and that from severe examples of this disease (variola major). Since comparable material from six outbreaks of chicken-pox and from other control sources has been found to give completely negative results with antivaccinia serum under the same conditions, there is good reason to believe that this serological method of identifying the presence of variola virus will give valuable aid in future in the diagnosis of small-pox, if it be used.

From a study of the immunity reactions of the virus of herpes, the main conclusions formed by Dr. J. R. Perdrau were that the virus of herpes is identical with the causal agent of encephalitis lethargica. The herpetic virus was demonstrated in the brain of the only fatal cases of encephalitis lethargica available, three in number. An antibody formed in response to inoculations of the herpetic virus has been found to neutralise in vitro comparatively large doses of the virus.

As to canine distemper, the arrangements at the farm laboratories of the Council for the breeding of a clean stock of dogs for experimental purposes continue to be satisfactory, and in the meantime many investigations have been carried out. The discovery has been made that ferrets can be conveniently used for much of the experimental work, subject to ultimate confirmation of the findings in crucial experiments with dogs. The extreme infectivity of the disease has been demonstrated, and there are strong indications of the transmission of air-borne infection, at least over short distances in an enclosed space.

### *The Biological Actions of Light.*

Prof. F. A. Lindemann, F.R.S., has accepted appointment as chairman of the committee investigating this subject in succession to the late Sir William Bayliss. Simple and accurate methods of measuring the energy of ultra-violet rays of different wave-lengths, whether in sunlight or from artificial sources, are being sought, and the therapeutic and other biological actions of light are being investigated. Dr. R. G. Bannerman, working at the Lord Mayor Treloar Hospital, Alton, is attempting to find means of measuring the clinical effects of light which might serve as a guide to the optimum dosage. Certain of his observations give fresh basis for the view that excessive dosage of light is harmful.

### *Anæsthetics.*

It is hoped in the near future to issue a schedule of simple tests which all samples of nitrous oxide issued for anæsthetic use should satisfy. It is recorded that after much difficulty, the commercial manufacture of ethylene has been taken up in England. Investigations of propylene, butylene, and acetylene are being pursued. Dr. A. J. Copeland, investigating less dangerous substitutes for cocaine for use in producing local anæsthesia, has shown that psicaine is unlikely to be useful for this purpose. With Mr. H. E. F. Notton he reached the conclusion that ethocaine borate, or "borocaine," is in many respects the ideal surface anæsthetic, and is of very low toxicity.

### *The Physiology of Vision.*

The Council have, after consultation with the Admiralty, the War Office, and the Air Ministry, appointed a committee to initiate and supervise researches in the physiology of vision, to coöperate with other Government departments, especially the Service departments, in studying problems involving questions of vision, and to encourage research in the subject generally. The personnel of the committee is as follows: Sir John H. Parsons, F.R.S. (chairman), Surgeon-Commander M. B. Macleod, Mr. F. C. Bartlett, Wing-Commander E. C. Clements, Major J. H. Gurley, Dr. H. Hartridge, Sir William Lister, Mr. J. W. T. Walsh, Mr. D. R. Wilson (secretary).

Dr. H. Hartridge and Mr. R. J. Lythgoe have completed a preliminary study of the effects of flicker on visual acuity and on peripheral perception of movement and are studying the effects of intensities of illumination upon visual acuity. During the coming year the committee propose also to investigate the effects of glare, and to initiate researches into the perception of movement, and the effects of fine industrial work on the eyesight. Miss Ida Mann is inquiring into the development and structure of the human lens with a view to explaining the phenomena observed by recent workers with the Gullstrand slit-lamp.

### *Experimental Epidemiology.*

In a first report upon the results gained in the study of long-continued experimental epidemics, by Prof. W. W. C. Topley and Dr. Major Greenwood, the data of experimental epidemics of pasteurellosis in mice, lasting for more than three years, are analysed and discussed. It has been shown that pasteurellosis will continue as a fatal infectious disease within a herd of mice for an indefinite period, exceeding at least three and a quarter years, or more than a complete generation speaking in terms of the normal lifetime of the mouse, on the sole condition that the population at risk is replenished by susceptible but non-infected animals. It is not true, so far at least as the animal and the infective organism studied are in question, that an infectious disease can be brought to a standstill in an infected community even by rigorous exclusion of infected immigrants. It is suggested that serious attempts should be made to find whether the observable data of herd sickness, naturally occurring in domestic or farm animals as well as in man, confirm or refute the teaching of this investigation. It is suggested further that this experimental work may give new guidance in the study and in the practical control of natural epidemics.

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Post-graduate Courses in Berlin.—A series of international post-graduate courses is to be held in March in which the medical faculty of the University of Berlin will participate. The arrangements include courses in all the departments of medicine, particularly those of special interest at present: a two-weekly course on diagnostic and therapeutic technique, with practical work; a two weeks' course of clinical lectures in medicine; a one week's course on nervous diseases; a two weeks' course on the diseases of children; and a post-graduate course for ear, nose, and throat specialists. Further information can be obtained from the office of the International Post-Graduate Courses, Berlin, N.W. 6, Kaiserin Friedrich-Haus für das Ärztliche Fortbildungswesen, Luisenplatz 2/4.

# EDUCATION OF MYOPIC CHILDREN

## REPORT BY THE COUNCIL OF BRITISH OPHTHALMOLOGISTS

THE Council of British Ophthalmologists, which is a central standing committee of ophthalmological societies in the United Kingdom, has just issued a report [1] on the methods adopted in various parts of the British Isles for the education of children suffering from defective vision due to myopia or other causes (excluding the blind) For the purpose of this inquiry the Council has appointed Mr M S. Mayou (chairman) Dr W A. Anderson Mr N Bishop Harman, Mr R Beatson Hird, Dr J Kerr Mr G H Pooley, Dr W E F Thomson Mr O H. Walker, and Mr F A. Williamson Noble with the President, Mr E Treacher Collins and the hon secretary, Mr W H McMullen ex-officio Excluded from consideration were children who, on reaching adult life, would probably be economically blind, that is, 'unable to do work for which sight is essential," for in the opinion of the Council such children should be educated in schools for the blind

### *Special Educational Facilities*

The Council considers that special educational facilities are required for those who have defective vision, and for whom the ordinary school education is unsuitable—e g, cases of progressive myopia, defective vision due to corneal opacities, congenital abnormalities. Classes which give the required facilities exist, and are termed by the Board of Education schools for the partially blind." The Council thinks that this term is undesirable; it gives offence to parents and may leave a stigma detrimental to the child in after life The term ' myope class " is already in use, and connotes the purpose for which this form of education is designed Such classes were established by the London Educational Authority in 1908 It has been found that the best interests of these children are served if such classes are held in association with elementary schools, because the oral teaching and physical exercises given in the ordinary classes are available for the children. By this system association is fostered between the defective-sighted and normal children As the children in these classes are of various ages and educational standards individual teaching is essential, and therefore it has been found advisable to limit the number of children in each class The system of teaching by means of ' myope classes may seem to limit education so far as high scholastic attainment is concerned, but it has been found undesirable to encourage these children to follow a higher education, with the prospect of a sedentary occupation, thus incurring grave risks of serious breakdown later in life.

### *Existing Accommodation*

The Council has been informed that in London there are now 41 ' myope classes " providing accommodation for 015 children In the rest of England, according to the latest information available (Report of Board of Education, 1024, list 42), there are four myope schools,' and provision for other defective sighted children is made in special classes and in schools for the blind. With a view to obtaining further information a questionnaire was sent to ophthalmic surgeons practising in 76 areas of England, Scotland, and Wales, excluding London, with the following results —

*Question 1* — Are the school-children under the educational authorities of your district examined with regard to visual acuity, and those with defective sight systematically examined and treated by spectacles (when required) by a qualified ophthalmic surgeon?—*Results*: All children are examined with regard to visual acuity In nine areas no treatment is provided; in all others spectacles are ordered by an ophthalmic surgeon when required

*Question 2.*—The number of special schools for children with defective vision.—*Results*: Sixteen such schools or classes exist in nine areas.

*Question 3*—The number of classes for these children attached to (*a*) blind institutions, (*b*) ordinary elementary schools—*Results* Seven are located in blind institutions. Nine are some form of special class or school. No special school or class is provided in 07 areas.

*Question 4*—In country districts where there are not sufficient children to form a ' myope class," is any provision made for their education?—*Results*: In one area the children are sent to special educational centres. In two areas teachers are trained in the principles involved in the education o myopes and special desks, with blackboards attached, are provided. In one area special instruction is given to head teachers. *In one area all children with high or increasing* myopia are restricted in their work, the most seriously affected cases being excused school for varying periods the teachers being advised about the kind of work which is suitable for them on their return.

The Council realises that the inquiry has not been exhaustive but considers that it demonstrates that, with a few notable exceptions, the provision for the education of the affected children is seriously inadequate It is obvious that in country districts where the number of defective-sighted children is insufficient to form special classes some provision should be made either to send them to one of these classes in the nearest town or for their teachers to receive instruction in their management.

The Council strongly endorses the recommendation of the Departmental Committee on the Causes and Prevention of Blindness "that further provision should be made by education authorities for the education in myope classes or by similar methods for children with serious defects of vision requiring such facilities, and that steps should be taken to discover these cases at such an early age as will allow of preventive measures being adopted."

### *Recommendations*

The report concludes with the following recommendations of the Council —

(1) Children with defective sight should be examined periodically by an ophthalmic surgeon, who should prescribe the necessary treatment and educational régime

(2) In all large centres of population special classes should be established for children with such defective sight as renders them unsuitable for ordinary school education. These classes should be associated with the ordinary elementary schools, and limited to a nominal roll of 20 children to each class

(3) *In country districts where there are not sufficient* children to form a myope class,' instruction should be given to teachers and parents on the education and management of children with defective sight. Instructions for teachers and parents are contained in three pamphlets issued by the London County Council: (*a*) Hints for teachers of myope classes, (*b*) memorandum containing advice to parents of short-sighted children who have been recommended for admission to a myope class; (*c*) teaching of children recommended by the medical officer for "easy treatment" "oral teaching only," or to 'sit in the front row" Parents and local care committees should it is added, receive advice as to the choice of occupation for the children on leaving school.

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ROYAL SOCIETY OF MEDICINE HONORARY FELLOWSHIPS.—At the last general meeting of the Fellows of the Society the following were elected to Honorary Fellowship Sir David Bruce, K C.B, F R.S. Sir Henry Morris, Bart. Dr Fritz de Quervain (Professor of Surgery, and Director of the Surgical Clinic University of Berne), Prof Camillo Golgi (Emeritus Professor of Histology, Royal University of Pavia), Geheim Med Rat. Prof. Dr Karl F J Sudhoff (Professor of the History of Medicine, University of Leipzig) Dr William James Mayo (Surgeon and Chief *of Staff*, the Mayo Clinic, Rochester, Minn., U.S.A.) and Dr Charles Horace Mayo (Professor of Surgery University of Minnesota, and the Mayo Clinic). Prof Golgi's death was announced shortly after the meeting.

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[1] Obtainable from the Hon. Sec. of the Council, 80 Brook street, London, W 1 6d.

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

### *The Cultivation of Babies.*

ON account of his status as oldest member—he was born in 1844—Prof. Pinard again presided at the reassembly of the Chamber of Deputies. As a political representative he has never forgotten that he is primarily an obstetrician and a *puériculteur,* and in his address on the promised social reforms he did not fail to draw attention to those points which he considers vital—namely, the improvement of the French birth-rate both in quantity and quality and the reduction of infantile mortality. "And it must not be forgotten," he said, "that everything which separates a child from its mother makes it suffer—nay, more, endangers its life. Yet every year in Paris nearly 10,000 children are removed from their mothers only a few days after birth. In 1925 9349 children were put to nurse outside Paris. Is there anything more urgent than to rid our country at once of this social disgrace?"

The diminution in the French birth-rate, aggravated greatly during the middle period of the war, is now being reflected among children who have arrived at school age. In Paris the diminution in the number of children of the primary school grades is so obvious that it has been found necessary to reduce the teaching staff by 700. A serious effort is, however, being made to reduce infantile mortality. As an illustration may be mentioned a poster now displayed with official encouragement in bakeries and elsewhere which reads: "Mothers and Expectant Mothers! Do not forget that sickness and death among children are often due to parental ignorance. For securing normal development of your children, you should have them regularly examined by your physician. If you are unable to pay for such medical service, the free clinics and consultations are at your disposal."

### *The Oculo-Cardiac Reflex.*

Compression of the eyeball normally produces a slowing of 5–13 beats per minute in the cardiac rhythm, but this slowing is said not to occur in locomotor ataxia. The reflex is of some value, but may be obscured or rendered variable and inexact by failure to observe correct technique in eliciting and recording it. Largeau and Laignel-Lavastine have recently pointed out this source of error. They employ only digital compression, using the pulp of the thumbs. Compression should not be continued for more than 20 seconds, but the pulse should be noted for about a minute after compression has ceased, in order to detect variations which may still occur. Strict attention to this technique assures, according to the authors, uniformity in results, as proved by graphic registration made in a number of tests.

### *Toxic Foods at the Halles.*

Investigation of 24 cases of food poisoning in Paris in 1923 has shown that the causal organisms were all of the *suipestifer* (Salmonella) group, and that the infection was conveyed by contaminated cream and eggs. At the Halles, or great central market of Paris, food is supposed to be inspected, but this inspection service is really insufficient. A goodly proportion of food, moreover, is distributed in Paris without entry at the Halles. In 1922 30,000 cases of eggs escaped inspection. It has been found that dangerous infection is especially conveyed through the soiling often present on the shells of eggs.

### *Success of Tuberculosis Stamp Sale.*

The Christmas stamp sale of 10-centime tuberculosis stamps, tried in the Department of Meurthe-et Moselle by the French National Committee of Defence against Tuberculosis, has proved an immense success. More than 3 millions of the stamps sold secured the sum of about 300,000 francs to be devoted to anti-tuberculosis work in France. Henceforth the stamp sale will be conducted throughout France.

## IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

### *Workmen's Compensation.*

Mr. T. Hennessy, medical secretary of the Irish Medical Committee, has been giving interesting evidence before the departmental committee which is investigating the question of workmen's compensation. Dealing with treatment, he said that many injuries were inadequately treated owing to the want of facilities in every district. A medical practitioner of ordinary skill could not be considered to have the necessary knowledge to treat certain injuries by massage and electricity. Mr. Hennessy advocated training for workmen permanently disabled. Use might be made of institutions set up by the Ministry of Pensions, but no attempt should be made to dispense with the patient's own doctor. He recommended that disputes due to conflicting medical evidence should not be heard in open court, but should be submitted to a State medical referee, with a right of appeal to a board of medical referees. The State medical referee should be available for consultation if required by the injured person's doctor. He should also have power to enforce treatment after consultation with the injured person's own doctor, and to reduce benefit if treatment was refused. A medical assessor would not be necessary if this procedure were adopted, but should present arrangements hold, whereby disputed cases were heard in open court, then the medical assessor should be summoned in all cases where medical evidence was to be taken. The judge should not have the option of saying whether or not the medical assessor should be present. Mr. Hennessy believes that the difficulties of establishing a percentage scale of incapacity are very great, though the adoption of such a scheme might be possible in such specific instances as the loss of an eye or total or partial loss of a limb.

At a subsequent session of the departmental committee Dr. G. Pugin Meldon, certifying surgeon for Dublin City, suggested that there should be a probationary period for the medical examination of persons between the ages of 14 and 16, as it often happened that poor children who were badly housed and fed showed much improvement after being at work for some time. He inspected factories and examined all young people between 14 and 16, and his duty was to satisfy himself that they were suitable for the work they were doing and the work they would have to do later on. At present he had no power to re-examine them. He had also to decide that the work was suitable, and that they were not likely to be a source of danger or infection to other workers. All big factories had now first-aid squads amongst their workers, and he thought that every factory, no matter how small, should have a first-aid case, and that some of the workers should be taught the principles of first-aid.

### *Proposal for a State Medical Service.*

Prof. M. G. O'Malley, professor of surgery in University College, Galway, delivered a lecture recently before the Chamber of Commerce of Galway, in which he urged the establishment of a State medical service. He suggested that entrance to the service should be by competitive examination, and that the successful candidates should be graded according to their suitability. There should be compulsory retirement at the age of 65 and all members of the service should be whole-time officers. The hospitals should be under State control. Mr. O'Malley looked to "a gigantic scheme of insurance" to finance the scheme.

### *Experience for County Medical Officers.*

As has already been indicated in THE LANCET,[1] the Local Government Act, 1925, lays down that every county shall appoint district medical officers of health who must hold the D.P.H. or some corresponding degree. With a view to promoting the training of candidates with special knowledge the Rockefeller Foundation is sending three men to the U.S.A. to familiarise *themselves with the* latest developments of public health procedure there. It has been recognised that the position of the existing tuberculosis officers holding the D.P.H. is entitled to special consideration, and arrangements have been made with the Society of Medical Officers of Health to enable such officers seeking appointment as county medical officers to acquire further administrative experience. The society has selected suitable county areas where Irish medical officers can acquire experience of English methods of health administration, and the following nominees of the Department of Local Government and Public Health of the Irish Free State, who have been granted travelling Fellowships by the International Health Board of the Rockefeller Foundation, have already been attached to county health departments in England. Dr. Thomas Reynolds (Leitrim) to Shropshire; Dr. J. J. Dennehy (Waterford) to West Suffolk; Dr. T. P. O'Reilly (Cavan) to East Sussex; Dr. B. O'Beirne (Galway) to Lindsey (Lincs.); Dr. P. J. Burke (Sligo) to Wiltshire; and Dr. J. J. O'Connell (Tipperary) to Buckinghamshire. In addition to these official nominees Dr. G. Fitzgerald, of Tralee, has been attached to the East Berks U.S.D., and Dr. D. J. O'Regan (King's County) will shortly be attached to the West Sussex health department.

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

Surg. Capt. T. T. Jeans is placed on the Retd. List with rank of Surg. Rear Admiral.

Surg.-Comdr. E. A. G. Wilkinson is placed on the Retd. List with rank of Surg.-Capt.

Surg. Lt.-Comdr. J. D. Bangay to be Surg.-Comdr.

D. Bell to be Surg.-Lt.

Surg.-Comdrs. F. L. Smith and R. H. McGiffen to *President*, addl., for the Medical Department of the Admiralty. W. H. Murray, to *Victory*, addl., for R.N. Hosp., Haslar, for specialist duties; G. R. McCowen and E. Moxon Browne, to *President*, addl., for three months' post-graduate course.

### ROYAL NAVAL VOLUNTEER RESERVE.

*Surg.-Comdr.* A. D. Cowburn is placed on the Retd. List with the rank of Surg.-Capt.

## ROYAL ARMY MEDICAL CORPS.

### ARMY RESERVE OF OFFICERS.

Lt. I. S. Thomson, late R.A.M.C., Def. Force, to be Lt.

### MILITIA.

Maj. J. C. Hall retires on attaining the age limit and retains the rank of Maj.

### TERRITORIAL ARMY.

Maj. R. G. *Badenoch resigns his* commission and retains his rank.

Capt. J. C. Andrews (late 9th Lond. R.) to be Lt. and relinquishes the rank of Capt.

Lt. R. S. Creed (late R.H.A., T.A.) to be Lt.

J. Cook to be Lt.

2nd Lt. R. J. P. McDowell (late R. Fus.) to be Lt.

*Sanitary Companies.*—F. W. Bury to be Lt.

## ROYAL AIR FORCE.

J. Magner is granted a short service commission as a Flying Officer for three years on the active list.

*West African Medical Staff.*—Dr. D. Duff, Medical Officer, Gold Coast, has been promoted to be a senior medical officer in that Colony in succession to Dr. H. W. Gush.

# Public Health Services.

## A PUBLIC MEDICAL SERVICE FOR LONDON.

COMPULSORY insurance at present by no means covers the medical needs of the poorer section of the community, for there is still a large class above the Poor-law level and yet unable to pay ordinary medical fees. *Mainly the dependants of insured persons,* they include also the families of those who do not come within the scope of the Insurance Acts. In some parts of the country these classes are provided for by clubs on contract lines or by provident dispensaries of various kinds. It is the persistent attempt in some places to perpetuate club practice in its less desirable forms, and the real demand in other places for medical attendance on a contract basis, as well as the delay in extending medical benefit to the dependants of insured persons, which accounts for the initiation of public medical services which are becoming quite common. The public medical service for London, projected by the Local Medical Committee, appears to be on the usual lines. It is based on voluntary contributions, the public are canvassed by salaried officers called collectors, who will enrol members and collect subscriptions of 3*d.* a head each week. The subscribers become eligible for treatment a fortnight after being enrolled. The services available are roughly the same as those under the medical benefit provision of the National Insurance scheme. Confinements and *special services* are excluded. Medicine is provided by the practitioners. There is an income limit of £250. Administrative expenses are to be met by an entrance fee of 1*s.*, and a quarterly charge of 9*d.* per member. In other words, 3*s.* out of the capitation fee of 13*s.* goes to the administration account. The scheme as set out will provide a basis for the extension of the medical benefit to dependants of insured persons, and will meet the demand on the part of friendly societies and others for contract service to the families of their members. Incidentally *it will remove from London practitioners any* temptation to take on cheap contract work. Whether the scheme as devised will meet these contingencies must depend upon the enthusiasm with which it is taken up. Its financial basis is voluntary, and success will wait on the ability of the collectors to persuade potential subscribers of the advantages to be gained by joining the service. The Essex scheme, run on similar lines, has certainly made good in the first two years of its existence. From the professional point of view, although the scheme may be a paying proposition, it will necessarily increase the work *of the already* busy practitioner. The experience of societies, such as the temperance organisations which have always had sections for children, shows that dependants are the most exacting members. To take over dispensing, as is suggested in the scheme, would further add to the work of the doctors. There is no reason to doubt that the coöperation of the chemists could be secured in providing medicines on lines similar to those of the insurance service. The projected service should then prove a boon to a large class of people who cannot pay doctors' bills, and who at present *crowd the* out-patient departments of our hospitals. The 300 or more practitioners who attended the recent meeting at the B.M.A. House appear to be keen on it. It remains to be seen whether the London public will realise the advantages of voluntary insurance *sufficiently to join in adequate* numbers.

## A GROWING SPECIALIST SERVICE.

In a report which has just appeared Dr. J. Middleton Martin states that increasing use is being made of the opportunities offered in Gloucestershire for treatment under the "Scheme for the Extension of Medical Services," and that the county council have been encouraged to enlarge its range. The advantages of the out-stations for the examination of children who live at long distances from the *general* hospital are being more and more appreciated. Arrangements have now been entered into with the Chepstow hospital and the cottage hospitals at Fairford and Winchcombe, and work will soon be begun at the new out-station at Soundwell. A table shows that during the last four years the work has increased in all directions, thus diminishing the average total cost per attendance. In 1921 the total cost per attendance was £1 13*s.* 6*d.*, the cost per case of specialist's services £1 18*s.* 6*d.*, the cost of medical officers per attendance 5*s.* 6½*d.* In 1924 the three items mentioned were reduced to 6*s.* 10½*d.*, 9*s.* 6½*d.*, and 1*s.* 11*d.* respectively; and it is expected that as the scheme develops there will be a further reduction. Requests for the opening of more out-stations have been received. The orthopædic service has been begun and will shortly be extended. Other services of almost any kind can be grafted on the scheme. The whole area of the county can be covered by the opening of 11 further out-stations in more or less populated areas and by the use of about 13 doctors' surgeries in the more sparsely populated parts of the county. The estimated capital expenditure for 1925 is between £6000 and £8000. The total maintenance expenditure for 1925 is £5050 and only exceeds the figure for 1924 by two-thirds, though it makes provision for an area more than twice as large. This last-named maintenance figure "works out at 2*d.* per head of the population in respect of rates per annum." The following are the details of the specialist services during the four years 1921–24: visits, 12, 45, 63, 80; cases seen 179, 705, 1091, 1485; operations 56, 159, 312, 412. There is therefore every indication of steady progress.

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[1] THE LANCET, Jan. 2nd, p. 42

### The Control of Food and Drugs.

The report of the Salford public analyst, Mr. G. D. Elsdon, shows that there is at any rate one sanitary authority which administers with energy the Sale of Food and Drugs Acts. In proportion to the population the number of samples taken in Salford is high. Competition among food manufacturers is constantly bringing up new points, and Mr. Elsdon is of opinion that it is unfair for the local sanitary authority to be saddled with the cost of litigation to settle points which are of national importance. Many local authorities, he says, refrain from taking action, not because they think action in a particular case is undesirable, but because they are not prepared to face the possibility of protracted legal proceedings. To take a case to the House of Lords at a cost of £5000 would involve Salford in the equivalent of a 1*d.* rate. Mr. Elsdon thinks there should be some machinery by which the cost of necessary and desirable prosecutions should not fall entirely upon one local authority. The substance in the 1924 report which calls forth this suggestion is lemon cheese, and some of the facts given about this substance will serve to illustrate Mr. Elsdon's case. According to all cookery books lemon cheese should consist of sugar, butter, eggs, lemon-juice and rind, in the (approximate percentage) proportion of 54, 11, 25, and 10 respectively. Some manufacturers still make lemon cheese of this composition, while others sell cheap substitutes containing no eggs, but margarine, glucose, tartaric acid, &c. The defence is that the public would not buy an article if it were not palatable, but Mr. Elsdon's question is: Are manufacturers at liberty to describe an article by the name of some other article, merely because the flavours are similar and because the inferior substitute is not actively injurious to health? A good example is given of a shop-keeper who once had a large trade in lemon cheese made by herself according to a formula of Mrs. Beeton and labelled "home made." She now sells one of the cheaper substitutes which she purchases from a manufacturer, but still continues to label it "home made." Other points brought out in Mr. Elsdon's report are as follows:—

1. If a Salford milk purveyor collects his milk by motor from a Cheshire farm, the Salford authority has no power to take samples at the place of delivery.

2. Owing to the decision in Anness *v.* Grivell, margarine may still be sold under a fancy name. Thus the Salford authority took proceedings with regard to a sample described as margarine blended with butter which only contained ½ per cent. of butter fat. According to Section 8 of 1899 Act margarine may contain as much as 10 per cent. of butter but is still margarine. The decision in the case of Anness *v.* Grivell has therefore had an extraordinary effect.

3. Six out of 55 samples of Cheshire cheese were found to be adulterated, and Mr. Elsdon thinks it is probable that cheese imported from Holland and made from half-cream and three-quarter cream milk is sold as "Cheshire" cheese.

4. Eleven samples of diabetic foods were examined and contained in some cases over 60 per cent. of starch. A prosecution would probably have failed, because a booklet containing analyses was supplied at the time of sale. A diabetic flour of which the analysis corresponded almost entirely with an ordinary wheat flour was sold at 7*s.* 6*d.* for a bag containing 6 lb.

5. Peach-kernel oil was sold for almond oil in five cases out of 34.

6. Six out of 12 cases of paregoric contained no opium.

7. One sample labelled "blended turpentine excellent for household cleaning purposes, &c.," contained not more than 5 per cent. of turpentine.

It is gratifying to read in Mr. Elsdon's report that there is a great improvement in the efficiency of the dispensing service under the Insurance Acts, and that the use of arsenic in the ink of paper used for food wrapping has been discontinued. Throughout his report Mr. Elsdon stresses the fact that the Food Manufacturers' Federation, and reputable food manufacturers generally, wish to do the right thing, although there may be a difference of opinion as to what is the right thing. Better results might be obtained if a central authority such as the Food Commission had the whole matter entrusted to them and endeavoured in the first instance by coöperation with the traders concerned to come to some understanding as to the standards which should be adopted. The admittedly high standard reached in the American canned-meat trade may fairly be attributed to coöperation between the Government and the trading associations.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN. 16TH, 1926.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 341 (last week 255); scarlet fever, 1717; diphtheria, 991; enteric fever, 24; pneumonia, 1337 (last week 1761); puerperal fever, 63; cerebro-spinal fever, 6; acute poliomyelitis, 3; acute polio-encephalitis, 2; encephalitis lethargica, 67; dysentery, 5; ophthalmia neonatorum, 122. There were no cases of cholera, plague, or typhus notified during the week.

Of the 341 cases of small-pox, 60 (last week 25) were reported from the county of Derby, 57 of them from Derby C.B.; 143 (last week 140) from the county of Durham, 13 of these from Gateshead C.B., 4 from South Shields C.B., and 1 from Sunderland C.B., the large remainder widely scattered over urban and rural districts; 21 from the county of Northumberland; 16 from the county of Nottingham, 11 of these from Sutton-in-Ashfield; 2 from the county of Stafford (Stoke-on-Trent C.B.)—a new focus; 9 from the East Riding of Yorkshire (Kingston-upon-Hull); and 90 from the West Riding, 77 of which (last week 58) occurred in Rawmarsh.

*Deaths.*—In the aggregate of great towns, including London there were no deaths from enteric fever (an unusual and very gratifying event), none from small-pox, 94 (58) from measles, 14 (1) from scarlet fever, 59 (4) from whooping-cough, 31 (9) from diphtheria, 51 (18) from diarrhœa and enteritis under 2 years of age, and 81 (16) from influenza. The figures in parentheses give the numbers for London itself. The number of deaths from influenza is still diminishing, the figures for the last three weeks, working backwards, being 81, 114, 123.

New Whitehaven Hospital.—Princess Mary Viscountess Lascelles, accompanied by Lord Lascelles and Lord Lonsdale, opened the new Whitehaven and West Cumberland Infirmary on Jan. 22nd. Formerly the building was Whitehaven Castle, the seat of the Lowther family since the seventeenth century. It was purchased five years ago from the Lonsdale trustees and presented by an anonymous donor to the governors of the old infirmary for conversion into a modern hospital. In addition to this gift the donor gave £20,000 towards the necessary alterations, which cost £50,000.

# Correspondence.

"Audi alteram partem."

## THE STATUS OF THE CLINICAL PATHOLOGIST.

*To the Editor of* THE LANCET.

SIR,—The thanks of the private pathologist are due to you for your championship of his rights in the leading article on the County Pathological Service (THE LANCET, Jan. 16th). The progress of research in clinical pathology has opened up fresh fields of inquiry in the matter of diagnosis and treatment of disease, and a large number of medical men have specialised in this branch during the past 20 years. As the demand increased various institutions were established, and now this kind of work is being catered for by public health authorities, pathological departments of medical schools and hospitals, combinations or companies under the control of medical men, and business firms who employ qualified medical men. We are in a transition period, and as the demands for the pathologist's services increase year by year, some form of unification of centres will have to be made. But this centralisation may take a long time to establish, and in the meantime, in order to keep up and increase the standard of knowledge required of pathologists, their interests must be safeguarded. Otherwise the class of men and women entering this field of medicine will deteriorate. It cannot be expected that the best men and women will specialise in pathology if the prospect held out to them is only that of laboratory workers with a fixed salary and little, if any, chance of obtaining clinical experience. Whatever method of centralisation is established in the future, I hope the necessity of combining clinical medicine with pathology will be kept in the foreground, for the very essence of progress and advancement in pathological knowledge depends upon this combination. I am, Sir, yours faithfully,

Jan. 20th, 1926. E. H. SHAW.

## HEDONAL ANÆSTHESIA.

*To the Editor of* THE LANCET.

SIR,—In a paper in THE LANCET of Jan. 16th Dr. R. K. Lambert suggests, as a result of experiments on animals, that some of the aliphatic non-volatile compounds might be used as a preliminary to general anæsthesia, and more particularly he mentions a mixture of isopral and hedonal. For the last six months I have been using hedonal in this sense, given by the rectum about one hour before operation. The solution I use is 100 gr. of hedonal in 5 oz. of 33 per cent. alcohol. The enema is given by the nurse and in 15 minutes the patient is in a sound sleep and is quite unconscious of anything until some six hours after the operation is over. He remains asleep during transit to and from the theatre and knows nothing of the administration of the general anæsthetic, whatever it may be. Usually it is quite sufficient to give gas and oxygen. I have performed gastrectomy, colectomy, hysterectomy, and gall-bladder operations under this combination of anæsthetics, and have found the muscular relaxation greater than with the ordinary preliminary injection of morphia, &c., and subsequent ether. This relaxation is so marked a feature that I think the hedonal must have some special effect on the somatic, or more probably on the sympathetic, innervation of muscles.

I have taken blood pressure readings during operation, and because hedonal belongs to the urea series, I have made blood-urea estimations before and after operation, but neither of these has been found to follow any course differing from what is seen under the usual conditions of anæsthesia. My observations do not quite coincide with those of Dr. Lambert on animals, for I find that given by rectum there is only a very short period—namely, 15 minutes—before the patient is asleep. As might be expected, the effects are not quite uniform. In the human subject, for example, a big man requires more than a thin, wasted one, and though most of the patients sleep on for several hours after operation and need (or rather receive) careful attention to ensure that pressure sores shall not arise, others have been found to be unusually restive. I think this is merely a question of learning the right dose for the type of patient. Pulmonary complications are, if anything, less frequently seen than after the ordinary method of anæsthesia. Occasionally the patients have a few hours of inefficiency of the anal sphincter, which may render the giving of continuous rectal fluid impossible, but this soon passes off.

I should hesitate to give hedonal when the kidneys and liver are known to be functioning deficiently, but I do not know that it increases the risk in these conditions over the more usual methods. All my patients have expressed great satisfaction with the merciful unconsciousness of the pre-operative affairs, and from the surgeon's point of view the remarkable relaxation of muscles in abdominal operations is a great convenience. I think that post-operative flatulence is less evident, too, but I am not sure about this; it might be expected, however, as handling can be more gentle if the surgeon is unhampered by stiff muscles.

I am, Sir, yours faithfully,

Leeds, Jan. 20th, 1926. E. R. FLINT.

## DETERMINATION OF THE BASAL METABOLIC RATE.

*To the Editor of* THE LANCET.

SIR,—The interesting article by Mr. T. C. Hunt on the above subject in your last issue induces me to mention a very simple but not very accurate method which I have long employed. The determination of the basal metabolism has been chiefly employed in hyperthyroidism, and in this affection accuracy is not of much importance as a guide to treatment. Moreover, all the methods for determining the excretion of carbonic acid and the absorption of oxygen are very complicated and liable to many errors. I make the patient take two or three deep breaths to get rid of any excess of carbonic acid in the alveoli and then suspend the breathing in inspiration or expiration. When a patient who has fairly normal lungs can hold his breath for 30 or 40 seconds you can safely conclude that there is no excessive basal metabolism. I think the estimation of the excretion of the nitrogenous waste products through the kidneys is of more importance than that of the carbonic acid through the lungs.

I am, Sir, yours faithfully,

*Liverpool, Jan. 25th, 1926.* JAMES BARR.

## GLYCOSURIA AND LIFE ASSURANCE.

*To the Editor of* THE LANCET.

SIR,—Dr. Arthur Davies states that it is no part of the duty of the assurance company to spend time and incur expense, even with the applicants' approbation, on special examinations for determining the prognosis in cases of glycosuria. Surely this is a matter to be decided in each individual case. The benefits of assurance are derived not only by the policy-holders but also by the companies, and the latter often risk losing remunerative business by the rejection of glycosuric cases on insufficient evidence. The important point would appear to be that both the proposer and the company should know that more precise information may allow of acceptance, after which the extent of the sum to be involved under the policy will probably determine in whose interest it will be to pay the necessary costs of the laboratory examination.

I am, Sir, yours faithfully,

Harley-street, W., Jan. 24th, 1926. T. IZOD BENNETT.

## IGNITION OF ETHER AT LOW TEMPERATURES.

*To the Editor of* The Lancet.

Sir,—The Joint Anæsthetics Committee of the Medical Research Council and the Royal Society of Medicine recently learnt from Prof. H. B. Dixon, F.R.S., that mixtures of ether vapour and oxygen would ignite at relatively low temperatures. Arrangements are being made for Prof. Dixon to carry out further researches into the ignition temperatures of various anæsthetic gases. but in view of the fatal accident which occurred in London some months ago, the Committee does not feel justified in delaying publication until this work is completed. Prof. Dixon has therefore sent me a preliminary report which I am instructed to make public.

It should be understood that this Committee does not wish to give an opinion as to the actual cause of the particular fatal accident referred to as it is without sufficient detailed information to warrant such a course. It must, however, be admitted that the metal tube of a dental dressing syringe used for drying purposes might easily be at a temperature above the danger point (200° C.) without such a possibility occurring to the mind of an operator unacquainted with the facts given below.

I am, Sir, yours faithfully,
Charles F. Hadfield, M.D.,
Hon Sec., Anæsthetics Committee.
London, W., Jan. 20th, 1926.

[The following passages are taken from Prof. Dixon's report to which Dr. Hadfield refers :—

"May I take the opportunity of urging the desirability, in the public interest, of issuing some warning as to the high inflammability of mixtures of ether with oxygen? It is curious how little information is given in text-books on the temperatures at which gases inflame, and there are some puzzling discrepancies between results that have been published in scientific journals. . . .

I have tested ether vapour by bringing it into heated oxygen through a silica tube equally heated, and have found a delayed ignition at 220° C. (428° F.)—a figure I believe to be too high (as a minimum ignition-point) rather than too low. Other observers have put the ignition-point of ether in oxygen as low as 100° C. (374° F.). A peculiar difficulty exists in the determination of the ignition-point of ether mixtures, because the vapour itself decomposes rather rapidly in contact with heated surfaces, and secondly, because the mixture may undergo a partial combustion with an almost invisible flame, and this may develop into the normal luminous combustion. The late Sir William Perkin found that ether vapour began to show this incomplete burning in air at 260° C., and Mr. A. G. White, of Messrs. Nobel's Explosives Co., has observed a "cool flame" to start under certain conditions below 190° C. Now the normal ignition of the most inflammable mixture of ether and air has been found by several observers to occur about 360° C.—the ignition not being violent. But ether and oxygen form highly explosive mixtures in which the detonation-wave may be rapidly set up once the flame is started. The lowest ignition-point of such ether-oxygen mixtures has yet to be determined precisely, but it is obvious that there is a special danger in bringing a heated body in contact with such mixtures. That the heated body is not visible red-hot is no guarantee of safety; the danger-point begins at least 300° C. below visible redness."]

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## "DAILY MAIL" HOSPITAL BALLOT.

*To the Editor of* The Lancet.

Sir,—In your issue of Jan. 2nd you report that the British Charities Association, of which I happen to be president, "allocated last year £15,000 and this year £20,000 to the London Hospital." No such luck! though I have little doubt that you will yourselves make up for the printer's error. The B.C.A makes no grants direct to any London hospital. The money allocated to London hospitals—note the "s"—is paid to the King's Fund, who distribute it as they think fit.

I am, Sir, yours faithfully,
Knutsford,
Chairman, London Hospital.
Jan. 22nd, 1926.

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## GOLD SALTS IN THE TREATMENT OF PULMONARY TUBERCULOSIS.

*To the Editor of* The Lancet.

Sir,—In his contribution to the discussion on the Treatment of Pulmonary Tuberculosis with Sanocrysin at the Royal Society of Medicine on Jan. 12th, Prof. T. R. Elliott mentions (The Lancet, Jan. 16th, p. 126) that sanocrysin is a soluble thiosulphate of sodium and gold. I should like to remind your readers that over eight years ago Mr. Henri Spahlinger, acting on the suggestion of the late Dr. Arthur Latham, used gold as well as bismuth and other mineral salts in the treatment of tuberculosis, publishing his results in the *Revue Médicale Suisse* of December, 1917. Mr. Spahlinger summed up his experience in the sentence: "So long as the doctor has not at his disposal a series of different bactericidal salts which will penetrate to the centre of the lesion, chemotherapy will be powerless to cure somewhat advanced tuberculosis."

I am, Sir, yours faithfully,
Bruce Bruce-Porter.
Grosvenor-street, W., Jan. 15th, 1926.

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## INTRA-URETHRAL NEGATIVE PRESSURE DURING COITUS.

*To the Editor of* The Lancet.

Sir,—Mr. Wansey Bayly quotes, and agrees with, Mr. Charles Gibbs's statement that "the meatus opens in the introducing movement . . . ." But is this so? I suggest *only in the absence of the frenum.* Examination of the frenum and its attachments will, I think, readily show that "the introducing movement," when engagement with the vaginal wall occurs, must exert traction on the frenum and draw tightly together the lips of the meatus, firmly closing it. There happens a close engagement of the frenum region of the penis with the vaginal wall. One proof of this is the fact that the V.D. clinic M.O. sees torn frenums noticed by the patient immediately after coitus. In a clinic for seafarers, such as the writer's, the complaint that "the bobstay has carried away" is not very rare. In no case has the patient with torn frenum admitted that the union had been with a virgin, or intromission difficult.

That the gonococcus is somehow deposited on the surface of the male urethra, remains there for a time, and spreads first along that surface, has always been nothing but a careless assumption. It receives no support from the mechanics of sexual congress as here suggested; nor from the common experience that the first few days' tingling thin discharge of an early case, though repeatedly examined with care, seldom indeed reveals any gonococci. As a rule these are found only later when the discharge has become macroscopically purulent. Were it mainly, or even at all, a surface infection, should not the bacterium be found readily from the start? Mr. Kenneth Walker has shown that in the male urethra the deeper lymphatic spread can at least outstrip the superficial original implantation.

I suggest that one thing appears as certain in gonococcal infection of the male urethra—viz., that it is from the very first an infection of the deeper lymphatics of the mucous membrane, and beyond the immediate reach of antiseptics.

I am, Sir, yours faithfully,
H. M. Hanschell.
Albert Dock Hospital, Connaught-road, E., Jan. 22nd, 1926.

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*To the Editor of* The Lancet.

Sir,—Mr. Wansey Bayly's letter is interesting to me as I have been one of those who put forward the argument that septic material is carried down the male urethra during coitus by means of a suction action (*Practitioner*, February, 1922). Mr. Bayly's comparison to the piston and cylinder is erroneous. The head of a metallic piston is not a living organ nor is it possessed of muscular action. The *rigid* penis may resemble a piston, but fortunately a penis possesses a contractile power of its own; thus, during coitus there is the body working the piston and the piston undergoing rhythmical contractions. Female hormones are undoubtedly absorbed by the male urethra during intercourse, why not infected material?

I am, Sir, yours faithfully,
M. W. BROWDY.
Harley street, W., Jan. 22nd, 1926

## AN EASY METHOD OF PERFORMING TRACHEOTOMY.

*To the Editor of* THE LANCET.

SIR,—Some 15 years ago I performed tracheotomy in an adult on lines very similar to those described by Prof. Kenelm H. Digby in the LANCET of Jan. 16th. The trachea was obscured by an unusually wide thyroid isthmus which was clamped on each side with long-bladed forceps, and then divided. The operation, as stated by Prof. Digby, was simple and almost bloodless.

I am, Sir, yours faithfully,
C. HAMILTON WHITEFORD.
Plymouth, Jan. 21st, 1926

## PRIVATE NURSING HOMES.

*To the Editor of* THE LANCET.

SIR,—Is it not most desirable that consultants and general practitioners, before recommending patients to a private nursing home, should invariably have a good knowledge of the home, as regards the nursing staff and the food; and that patients or their relatives should make more careful inquiries on these points than is usually the case?

Pay wards in a hospital are under the control of a responsible hospital board; but private nursing homes are usually not under the control of any such responsible body. Of course, most private nursing homes are good, or fairly satisfactory; but not all. When we think of those we have loved and lost, it is most distressing to know that the last weeks of their lives were made miserable by the unkind and unsympathetic treatment of the nurses, and by the bad food in a private and expensive nursing home. Worse defects I do not desire to discuss.

I have ventured to write this letter owing to my own sad experience, and the experiences related to me by numerous reliable friends. Also it is desirable that disrespect for the medical profession should not be tolerated in any private nursing home. Recently the lady director of a large and well-known private nursing home in London calmly informed me (without any provocation) that most medical men were not straight, and were more suitable for tram-drivers than doctors, and that nurses were badly and unfairly treated by medical men. As general statements these remarks are, of course, untrue and unfair.

I was also informed at this home that patients were ungrateful. I have the diary of a patient who recently died as the result of treatment in this nursing home; and it is very painful reading indeed. I can understand that for the nursing and treatment in such a home patients cannot feel grateful

I am, Sir, yours faithfully,
M.D., F.R.C.P.
London, Jan. 26th, 1926

⁂ Private nursing homes vary from the good to the inadequate and—judging from communications we have received at different times—even to the bad. It is certainly right that the doctor in charge of the case should be responsible for the diet, and his inquiries as to the possibility of the home supplying the diet ordered in proper substance and in proper manner would be accepted in well-run nursing homes as perfectly reasonable. Where a consultant is in question, the home having been selected by the doctor in charge of the case, the support of the consultant should be insisted upon. Where the consultant is responsible for the choice of the home, he should in every case listen to representations of faults, either in diet or service. We are aware of difficult and delicate situations which may arise, while we are also well aware that the stories of large profits made by private institutions have been very generally baseless. —ED. L.

## ORGANOTHERAPY IN SEXUAL PERVERSION.

*To the Editor of* THE LANCET.

SIR,—In your annotation concerning sexual offences against young persons (THE LANCET, Jan. 2nd) you draw attention, rightly it seems, to the absence of mental defect as a cause. In this age of organotherapy it might be well to consider the possibility of other causative defect than a mental one in these cases of sexual abnormality and in other forms of sexual perversion. It is quite conceivable that deviation from the normal sexual impulses is connected with hormone lack. Two French physicians, L.-M. Pierra and A. Jouve,[1] claim to have effected good results in sexually abnormal females by spermatotherapy, injection of orchitic extract of the spermatogenic portion of the gland. If this be so, then possibly ovarian extract would have a similar effect on male perverts. The victims of abnormal sexual desires might be induced to disclose themselves were there a prospect of treatment by other than punitive methods.

I am, Sir, yours faithfully,
D. T. BARRY.
Physiological Department, University College, Cork,
Jan. 19th, 1926

## PROFESSIONAL CRITICISM OF THE GENERAL MEDICAL COUNCIL.

*To the Editor of* THE LANCET.

SIR,—It seems to me that the present criticism of the General Medical Council in the public press at home is not due to any lack of appreciation by the public of the need of such a body to prevent the growth of abuses which would inevitably arise were the Council non existent, but to the methods of its judgments. It is one of our national characteristics to regard with suspicion the decisions of tribunals empowered to pronounce summary judgments without appeal, and for this reason those of a professional tribunal like the General Medical Council which can to all intents and purposes determine without appeal the career of a professional colleague are particularly suspect. I have been in the habit for many years of reading the proceedings of the Council as reported in THE LANCET, and am convinced that its decisions are almost invariably both just and tempered with mercy. Nevertheless I am in agreement with the great majority of my fellow countrymen who resent the practical absence of appeal from the judgments of the Council. The General Medical Council being under the Privy Council, any practitioner struck off the Register has, it would appear, the right of appeal to the Privy Council itself. This being so I would suggest that it should be arranged that in future such appeals should be referred for consideration by the Privy Council to its Judicial Committee—that very illustrious body which is the highest court of judicature in the Empire. Were this done public opinion would be reassured and much irrelevant criticism of the Council obviated.

I am, Sir, yours faithfully,
HINDUSTAN.
Bengal, India, Jan. 7th, 1926.

⁂ Our correspondent may not have seen a recent leading article in THE LANCET setting out the legal position. There seems no doubt that the Judicial Committee of the Privy Council would not act in the way suggested; the actual question of their doing so has been raised before.—ED. L.

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[1] Journal de Médecine de Bordeaux, 1925, p. 101.

## THYROID GLAND AND CALCIUM THERAPY

*To the Editor of* THE LANCET.

SIR,—In your issue of Jan. 9th appears a letter from Dr. D. C. Nasmyth which raises a point of great clinical importance—namely, the advisability of administering thyroid substance to individuals suffering from chilblains. Dr. Nasmyth contends that any benefit which results from such treatment is due to the contained parathyroid element, and that, in her experience, the "administration of thyroid often causes chilblains where they have not previously existed."

There is, I think, ample evidence that the salts of calcium are of great value in the treatment of chilblains, and the work of Groves and Vines showed that the parathyroid apparatus and the calcium metabolism of the body stand in close relationship. In the experiments of MacCallum and Voegtlin on the effects of calcium salts on tetany, they showed that both in animals and human beings the administration of lime salts caused the symptoms to disappear. The exhibition of calcium salts in the treatment of chilblains dates back to days before the rôle of the parathyroids was understood. It is now, in conjunction with parathyroid substance, an accepted method of treating this troublesome, if somewhat petty, complaint. That many sufferers from chilblains are also hypo-parathyroideics is probable; it is also likely that some of these individuals are lacking an adequate supply of thyroid secretion, and they would therefore benefit by thyroid feeding.

The whole question of the inter-relationship of the thyroid and parathyroid apparatus is still so undecided that, clinically, it is only possible to pick out the outstanding symptoms in an individual case and prescribe accordingly. I do not see any good grounds for objecting to the dual prescription of thyroid and parathyroid in a given case, so long as the symptoms support such a prescription. I cannot personally recall any patients who have developed chilblains for the first time after taking thyroid substance; but it is not improbable that this might occur in what may be called "potential" sufferers, if their calcium elimination was briskly stimulated.

I am, Sir, yours faithfully,
IVO GEIKIE COBB.
Queen Anne street, W., Jan. 12th, 1926.

## CHARING CROSS HOSPITAL INSTITUTE OF PATHOLOGY.

*To the Editor of* THE LANCET.

SIR,—In your issue of Nov. 22nd, 1924 (p. 1102), you published details of a scheme under which the Hospital for Epilepsy and Paralysis placed its pathological facilities at the disposal of general practitioners in the neighbourhood, for the benefit of those patients who could not pay private fees, and in the same issue (p. 1097) a letter signed by the pathologists of three London hospitals, of whom Dr. Alfred Piney was one, protesting against the hospital's policy. Their argument was carried on by Dr. J. A. Murray, President of the Pathological Section of the Royal Society of Medicine, and you were good enough to publish a reply from the hospital on Dec. 6th (p. 1206).

A circular dated Nov. 1st, 1925, from Charing Cross Hospital Institute of Pathology has reached me, from which it appears that this hospital's scheme, which was criticised a year before, has been in the main adopted by the Institute. In an accompanying schedule of fees the statement is made that Dr. Alfred Piney (one of the signatories of the above-mentioned letter) will sign all reports, and I venture to ask, through your columns, if Dr. Piney will state what has influenced him during the past 12 months to change his views, and whether his present opinions are shared by his co-signatories.

I am, Sir, yours faithfully,
H. W. BURLEIGH,
Secretary and General Superintendent, Hospital for Epilepsy and Paralysis.
Jan. 25th, 1926.

## THE SPECIAL DIPLOMAS OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

*To the Editor of* THE LANCET.

SIR,—The younger generation can now obtain diplomas in otology, ophthalmology, and other subjects at the Royal College of Surgeons of England as an evidence of their competence to practise these branches of their profession as "specialists." This is a step in the right direction, but to senior men it may seem hard that, after years of hard work, they should be without such a special diploma unless they pass the necessary examination. Many men hesitate, lest failure should occur to prejudice them in the eyes of their patients. They feel that such an examination would be at the hands of their contemporaries, possibly even of their juniors, and that differences of personal opinion might hazard their success. Would it not be an expedient and graceful act if the Royal College could see its way to granting its special diplomas to those who have been practising their specialties for, say, 25 years? Of course, on payment of the necessary fee.

I am, Sir, yours faithfully,
F.R.C.S. AND SPECIALIST OF THIRTY YEARS STANDING.
Jan. 22nd, 1926.

⁂ Our correspondent, whose position as a specialist requires no strengthening, puts forward a view that must command sympathy, but we believe that the College would decline the responsibility suggested. The task of discrimination would be too difficult because there are no standards on which the withholding the diploma without examination from claimants to the position of specialist could be justified, at any rate, in the eyes of the disappointed. And injustice might be done unwittingly.—ED. L.

# Obituary.

## IRIS FOX, M.D. LOND.

WE deeply regret to record the death of Dr. Iris Fox from septicæmia. She pricked her finger at an autopsy on an accident case on Christmas Eve and this was followed by severe local infection, which it was hoped for several weeks would not become generalised. Her death occurred on Jan. 21st.

Iris Fox was the youngest daughter of Dr. R. Fortescue Fox and was born at Strathpeffer Spa, of the sixth medical generation in direct line of the Fox family. She was educated at Queen's College, Harley-street, and the Mount School, York, and then studied for two years at the Slade School of Art before entering the London School of Medicine for Women with a scholarship. After qualifying in 1915 she held a series of resident appointments at the Royal Northern Hospital, the South-Western Fever Hospital, and the South London Hospital for Women. Towards the end of the war she spent some months at Samoëns, in French Savoy, in charge of women and children *sinistrées*, sent there by the Friends' War Victims' Committee. In 1918 she became medical registrar at the Royal Free Hospital before definitely taking up the pathological work which was to become her chief interest in medicine. After 18 months as second assistant pathologist at St. Mary's Hospital and a further year as assistant pathologist at the Swansea General Hospital, Dr. Iris Fox was appointed senior assistant pathologist at the Royal Free Hospital, which carried with it the assistant directorship of pathological studies in the London School of Medicine for Women. Just before doing so she took the M.D. Lond. with pathology as the special subject, and worked for some months on endocrine glands in relation to mental disorder, at the Maudsley Hospital, under the guidance of Sir Frederick Mott. Her time at the Royal Free Hospital was largely spent in organising an efficient bacteriological department, what remained being devoted to a study of the streptococci, especially in relation to infective arthritis, which she was about to collate and prepare for publication at the time of her death. "The fact that so little of her work has seen the light was due," writes one of her colleagues, "to a confirmed habit of careful preparation and a certain diffidence of mind. The years spent in clinical work before her specialising in pathology had given her experience and a sense of proportion, and she was laying the foundations for really useful bacteriological investigation. In the earlier years of her work pathology had to compete for the mastery of her mind with books, people, and the countryside. Her friends never felt it necessary to remember her scientific attainments, for she was essentially an artist, and though a feeling that she lacked technical ability led her to abandon painting as a profession she had the best of taste in literature and art."

We hope that it may prove possible still to publish the work on the *streptococci, to the study of* which Dr. Iris Fox had devoted the best years of her life and to which by a melancholy coincidence her early death was due.

## JOHN ASTLEY BLOXAM, F.R.C.S. Eng.

Mr. J. A. Bloxam, who died on Jan. 12th at the age of 82, was a surgeon of the old school, who gained a considerable reputation in plastic surgery. As a student at St. Bartholomew's Hospital he was a pupil of Sir James Paget, and after qualification as M.R.C.S. Eng. in 1864, was so fortunate as to be appointed house surgeon—and later private assistant—to that great man. Becoming F.R.C.S. in 1871, he acted for a time as assistant surgeon to the Royal Horse Guards (Blue), and when he left the Service, which gave him hardly enough scope for his talents as an operator, was appointed surgical registrar at St. Bartholomew's. In 1873 he became assistant surgeon to Charing Cross Hospital, and for more than 30 years gave devoted service to this institution and its medical school.

Mr. Bloxam's remarkable dexterity and neatness made him an excellent plastic surgeon. His methods, so far as antiseptic or aseptic technique were concerned, *might be conservative, but his results were remarkably* good, and it has been regretted that a man with such gifts for general surgery should have early specialised in venereal disease. The repair of tertiary syphilitic destruction, however, gave him many opportunities for exercising his ingenuity. The transplantation of part of a finger to form the basis of a new nose was one of his successes, and created a sensation at a time when plastic surgery was hardly even in its infancy. In course of time Mr. Bloxam became senior surgeon to Charing Cross Hospital and was also senior surgeon to the London Lock Hospital. Although he regarded himself as a disciplinarian he had the kindest of hearts and made very many friends. On his retirement to Bourne End, Buckinghamshire, where he inherited a small estate, he took a prominent part in the public life of the district, and was a justice of the peace and chairman of the Little Marlow Parish Council. For recreation he took delight in fishing and shooting.

Mr. Bloxam was a Knight of Grace of the Order of St. John of Jerusalem. He is survived by his wife, a son, and two daughters.

The Educational Health and Food Campaign.—This campaign was inaugurated in 1907 and has since been carried on with the help of numerous medical, philanthropic and other bodies. The intention of the organisers has been to spread information on how to keep healthy and on the choice and preparation of food. No special system of diet has been advocated, but attention has been directed to those foods which nourish best at least cost; the value of finely-ground wholemeal bread has been emphasised. At the request of the Bread and Food Reform League the campaign is now being continued by the People's League of Health. Funds are urgently needed to fight the widespread ignorance of the public. Local health authorities are being urged to arrange meetings and to publish and distribute educational pamphlets. The signatories of the appeal, issued from 12, Stratford-place, London, W. 1, include many distinguished medical men. Subscriptions may be sent to the hon. organiser.

# Medical News.

University of Oxford.—The Rolleston Memorial Prize, which is now worth about £100, will be awarded in the Trinity term for a memoir of original research in animal or vegetable morphology, physiology, pathology, or anthropology. The prize is open to Bachelors in Arts or Medicine at Oxford and Cambridge within six years of graduation and ten years *of matriculation, and also to certain others* who have been candidates for such graduation or for the B.Sc. at Oxford. Work already published is admitted to the competition, and candidates must forward their memoirs to the Registrar of the University of Oxford before March 31st next.

University of London.—A course of six lectures on the Physiology of Muscle will be given by Prof. A. V. Hill at University College, Gower-street, W.C., at 5 p.m., on *Monday, Feb. 1st,* and *on the following Mondays.* Admission will be free without ticket.

*University College Hospital.*—A series of four lectures on the History of Medicine, illustrated by lantern slides, will be delivered at University College Hospital Medical School by Dr. Charles Singer, on Thursday, Feb. 4th, and the three following Thursdays, at 4.15 p.m. The subjects of the lectures will be the History of Malaria, of Gout and Diabetes, of Rickets, and of Small-pox; they will be open to medical students.

Territorial Army Medical Officers' Association.—Medical officers, both active and retired, are reminded that the first annual dinner will be held on Friday, Feb. 12th, at 8 p.m. in the Café Royal, 68, Regent-street, W. Many distinguished guests are expected. Tickets may be obtained from Colonel M. B. Ray, D.S.O., M.D., at 37, Russell-square, London, W.C. 1.

Fellowship of Medicine and Post-Graduate Medical Association.—Dr. J. W. McNee will lecture for the Fellowship, on the Treatment of Renal Disease, on Feb. 4th, at 5 p.m., in the lecture hall of the Medical Society, 11, Chandos-street, London, W. A comprehensive course in Venereal Diseases begins at the London Lock Hospital on Feb. 1st and will continue throughout the month. From Feb. 8th to 27th a combined course in Diseases of Children will be given by the Paddington Green Hospital, Victoria Hospital, and the Children's Clinic. There will be morning and afternoon sessions in all *departments of the hospitals.* For the convenience of the general practitioner, the London Temperance Hospital has arranged to hold an evening course from Feb. 8th to 19th. A general intensive course in medicine, surgery, and the specialties will take place at the *Queen Mary's Hospital, Stratford,* from Feb. 15th to 27th. Daily sessions will be given at 10.30 a.m. to 5 p.m., including demonstrations of clinical methods and groups of illustrative cases. The following courses will be held in March: Medicine, Surgery, and the Specialties at the Hampstead Hospital (for the general practitioner); Bacteriology, Westminster Hospital; Diseases of the Chest, Brompton; Gynæcology, Chelsea Hospital for Women; Ophthalmology, Royal Eye Hospital; and Tropical Medicine at the London School of Tropical Medicine. All the syllabuses and the General Course programme, which also appear in the *Post-Graduate Medical Journal*, may be had on application to the Secretary of the Fellowship, at 1, Wimpole-street, London, W. 1.

James Mackenzie Institute for Clinical Research, St. Andrews.—On Jan. 10th Prof. David Waterston resumed his consideration of Mackenzie's position in regard to general medicine. In his earlier works a provisional classification of symptoms into structural, functional, and reflex was adopted, the term reflex being limited to such manifestations as the viscero-motor and viscero-sensory reflexes. But in his later work he pointed out that the functional activity of each organ is regulated and controlled so that it is adapted to the needs *of the whole* body from moment to moment, and that this regulation is effected by reflex activity. He therefore included functional symptoms in the class reflex. The view put forward that the majority of symptoms, other than structural, are due to the disturbance of normal reflexes *is of the* greatest value to clinical medicine. It draws attention to the fact that symptoms are end-results, and that for their proper investigation it is essential that the intermediate processes concerned in their production be detected. A particular symptom *such as breathlessness may* occur as a normal event, as a result of experiment, as the result of administration of a drug, or in disease. The process concerned is, however, the same in each case. The basis of medicine must therefore be a knowledge of the processes by which organs are regulated.

RONTGEN SOCIETY.—A meeting will be held on Tuesday, Feb. 2nd, at 32, Welbeck-street, London, W., at 8.15 P.M., when R. J. McCallum Tozer will read a paper on a Gas Tube with Variable Penetrating Power, and M. A. Codd will describe a New Regulator for a Gas Tube.

ROYAL MEDICAL BENEVOLENT FUND GUILD.—A concert will be given by the Stock Exchange Male Voice Choir at the Wigmore Hall on Feb. 23rd, at 8.15 P.M., in aid of the Guild. The Choir will be assisted by Miss Dorothy Silk, Miss Margaret Fairless, Miss Kathleen Markwell, and Mr. Norman Stone, and a very attractive programme has been arranged. Tickets, from 10*s.* 0*d.* to 2*s.* 6*d.*, may be obtained from the secretary of the Choir, Stock Exchange, E.C. 2, or at the Wigmore Hall.

PRESENTATION TO PROF. RUTHERFORD MORISON.—On Jan. 21st a portrait of Prof. Morison was presented to him at Newcastle in recognition of his great services to British surgery. We are asked to state that any subscribers wishing to have a photogravure should apply immediately to Mr. R. J. Willan, 6, Kensington-terrace, Newcastle-on-Tyne, as copies will shortly be unobtainable. On page 265 is described a Russian modification of the bipp method of treating infected wounds which Prof. Morison introduced in 1916.

THE CHILD OF SCHOOL AGE.—A series of lectures on the Health of the Child of School Age is to be delivered under the auspices of the Institute of Hygiene at 28, Portland-place, London, W., on Wednesdays from Feb. 10th to April 21st, at 3.30 P.M. The first three lectures will be on the Dental Problem in Relation to School Children, by Sir Harry Baldwin, on Feb. 10th; on the Prevention of Nervous Affections in the Young, by Dr. Risien Russell, on Feb. 17th; and on Diet in Schools, by Dr. L. R. Lempriere, on Feb. 24th. A number of seats will be kept for Fellows, Members, and Associates of the Institute, but there will be ample accommodation for others interested in health problems, and seats will be reserved for the whole course on application to the secretary.

WELSH HOSPITALS REUNION DINNER.—The first reunion dinner was held at Cardiff on Jan. 16th. Colonel A. W. Sheen, who commanded the Netley and Overseas Hospitals, presided, and was supported by Lieut.-Colonel H. G. Cook, who succeeded Colonel Sheen in the command of the Netley Hospital; by Sir W. J. Thomas, the greatest benefactor of the hospital; by Alderman J. Robinson, who as Lord Mayor of Cardiff supported the hospitals throughout, and by a representative company of over 100 of all ranks. Colonel Sheen said that the Welsh Hospital was the first voluntary hospital in the war, its inception dating from August 8th, 1914. After a reference to those who lost their lives on service, he spoke in detail of the work of the Overseas Hospital in India with its 3000 beds. It was felt that a dinner which had produced so many interesting meetings should be repeated.

BUREAU OF HYGIENE AND TROPICAL DISEASES.—By decision of the hon. managing committee of the Tropical Diseases Bureau, and with the approval of the Secretary of State for the Colonies, the Bureau's name has been changed to "Bureau of Hygiene and Tropical Diseases." The Bureau traces its history back to 1908, when, as a result of the International Sleeping Sickness Conference of 1907, the Colonial Office founded the Sleeping Sickness Bureau which, for four years, carried on its work of preparing and publishing the *Sleeping Sickness Bulletins* in a room put at its disposal by the Royal Society. Towards the end of this period it brought out also the *Kala-Azar Bulletin*, and in 1912 it outgrew its accommodation and moved to the Imperial Institute. Here its scope was widely increased and it became the Tropical Diseases Bureau, publishing in place of the journals named the *Tropical Diseases Bulletin*, now in its twenty-third volume, and the *Tropical Veterinary Bulletin*, of which 13 volumes have appeared. In 1920 it again outgrew its quarters and removed to what was then the new building of the Seamen's Hospital Society at 23, Endsleigh-gardens, where it occupies rooms put at its disposal by the new School of Hygiene and Tropical Medicine. Last year the managing committee, recognising the advances made in the practice of preventive medicine and the increasing need of the tropical and other Colonies for recent information on all branches of hygiene, decided to replace the Sanitation Supplements of the *Tropical Diseases Bulletin* by a monthly *Bulletin of Hygiene*, planned to meet the needs of the Dominions as well as the Colonies. The new journal will make its appearance this week. Dr. J. F. C. Haslam, recently Government medical officer of health of British Guiana, has replaced Colonel A. Alcock as assistant director and is in editorial charge of the new bulletin. The Bureau's name is now co-extensive with its activities.

THE LATE DR. THOMAS BERRY.—Whilst attending a dance arranged by the Woolwich Tuberculosis Care Committee on Jan. 22nd, Dr. Thomas Berry, who was a well-known practitioner in the Woolwich district, collapsed and died within a few minutes. Dr. Berry was a graduate of Glasgow University and was about 60 years of age.

MIDDLESEX HOSPITAL ON THE FILM.—A Pathé film of scenes in Middlesex Hospital has been prepared in support of the appeal for the rebuilding fund. The film shows the museum, work proceeding in the laboratories, the wards strutted to prevent collapse, the preparations for an operation, and so forth. Twelve minutes are required for its exhibition.

POOR-LAW HOSPITAL AT ROMFORD.—Last week Mr. Charles Rhys, M.P., opened two additional hospital blocks and a new nurses' home which the Romford Guardians have erected at a cost of nearly £100,000. There are 112 beds in each of the new blocks and accommodation has been provided for 100 nurses. The extension is necessitated by the development of the Becontree estate and other large adjacent areas.

"GOUT" AND ORTHOPÆDICS.—The Flintshire County Council is establishing a clinic for the treatment of orthopædic cases, the staff of which will be provided by Miss Hunt, the founder of the Shropshire Orthopædic Hospital. At a meeting explanatory of the scheme, Miss Hunt said that girls frequently complained to her of gout in the feet, whereas they were suffering from shoes with pointed toes and high heels.

LAW OF INQUESTS: CORONER URGES REFORM.—At an inquest on Jan. 21st, Mr. C. W. Surridge, the Manchester city coroner, drew attention to the unfortunate fact that inquests have to be held at the place where the body lies. In an accident case, such as the one he was dealing with, the proper place to hold the inquiry was the place where the accident occurred—where the coroner and jury were familiar with the locality. What prevented this common-sense procedure was the law enforcing the viewing of the body by the coroner. "I deeply regret," said Mr. Surridge, "that the draft of the new Coroners' Bill perpetuates this useless anachronism."

THE LATE DR. ROBERT BELL.—Dr. Bell, who died at his home in Kensington, on Jan. 20th, in his eighty-second year, had been physician to the Glasgow Hospital for Women for a period of 21 years, when, in 1896, he turned his attention to the problems of cancer. The direction which that attention took is well known. He came to London in 1901, became physician at the Battersea or Antivivisection Hospital, and published his view that cancer was a preventable disease due to contravention of the laws of nature, and that the disease was only made worse by operative interference. He wrote a book in which he submitted that complete disappearance of the disease occurred in the majority of cases of those who submitted themselves sufficiently early to his method of treatment, and he seems to have honestly believed that the rest of the medical profession would have adopted his views had they not been prevented by the loss of pecuniary returns.

MILK INEFFICIENTLY PASTEURISED.—A summons, stated to be the first of its kind in the country, was dismissed at the Wigan police court on Jan. 11th, for the alleged selling of pasteurised milk which had not undergone efficient pasteurisation. Evidence was given that a consignment of milk was received from the defendants at Wigan by a local retail firm, and that samples taken at the station had been submitted to Mr. Ernest Melling, analytical chemist to the corporation, who stated that although they were of very good quality the samples had not responded to the special colouration test to which he had submitted them, as efficiently pasteurised milk should have done. The milk had not been retained at a temperature of 150° F. for half an hour to complete pasteurisation which purchasers might expect. The manager of the Dalbeattie and District Farmers' Association, which supplied the milk to the defendants, admitted that since Nov. 2nd, at the request of customers, they had heated the milk to 150° F., but had not retained it at that heat for the usual half hour. It was not sold as pasteurised milk. Mr. Gilbert Hicks, Barnard Castle, who appeared for the defence, said that the case was extremely interesting and was novel for a police court. It was submitted that if there had been an offence—which was not admitted—the proceedings had been taken under the wrong Act—viz., the Food and Drugs Act instead of the Milk and Dairies Act of 1922. The magistrates after consultation dismissed the case.

GLASGOW ROYAL MATERNITY HOSPITAL.—Lady Blythswood last week opened new laboratories and administrative offices. The laboratories will provide facilities for research as well as for the ordinary work of the hospital.

HOSPITAL, HEALTH, AND NURSING EXHIBITION.—The sixteenth annual exhibition is to be held in the Central Hall, Westminster, from April 13th to 16th, and will contain a hospital section organised by the Hospital Officers, Association. Applications for space should be made immediately to the Secretary, 12B, Belsize Park-gardens, London, N.W. 3.

DONATIONS AND BEQUESTS.—Mr. Williamson Lamplough, underwriter, Blackheath and Bishopsgate, E.C., besides many other bequests, gave £1000 to the new medical fund of the Wesleyan Missionary Society.—Miss Agnes Marie Jacobina Zimmermann, of Devonshire-street, W., composer and musician, besides other bequests, left to the Hospital of St. John and St. Elizabeth, Grove-road, N.W., £1500 for an Agnes Zimmermann bed; £1200 to the New Hospital for Women, Euston-road, N.W., for an Agnes Zimmermann bed; £100 each to the Middlesex Hospital; the Royal Hospital for Incurables, Putney; the Metropolitan Convalescent Institution, the St. Marylebone Dispensary, the Seamen's Hospital, Greenwich; and £50 each to the Dental Hospital, Leicester-square, the Royal Hospital for Diseases of the Chest, City-road; and the Florence Nightingale Hospital.—Mr. George Frederick Spittle, Solihull, Birmingham, who left estate of the value of £32,433, after certain bequests, left his property to his wife, and on her death he made further bequests, and gave two beds in the Birmingham General Hospital to be endowed at the cost of his residuary estate, and to be named after his wife and himself; also £2000 to the Birmingham Bluecoat School, £1000 each to the Birmingham and Midland Eye Hospital and the Birmingham and Midland Hospital for Women; £500 each to the Birmingham and Midland Ear and Throat Hospital, the Royal Orthopædic and Spinal Hospital, Birmingham; the Royal Institution for the Blind, Birmingham; the Birmingham Children's Hospital; the Queen's Hospital, Birmingham; the Jaffray Branch Hospital, Birmingham, and the Birmingham Medical Mission, and the ultimate residue of his property for charitable purposes as his wife may appoint.—Miss Mary Elizabeth Norman, Rugby, left £1000 to the Hospital of St. Cross, Rugby, for the endowment of a bed.—Mr. Alfred Davies, Handsworth, Birmingham, left £500 each to the Birmingham and District Cripples Union and the Birmingham Royal Institution for the Blind.—Mr. William Heming Way, of Leeds, brewer, left £2000 to the Leeds General Infirmary, £1000 to the Leeds Public Dispensary, and £500 each to the Hospital for Women and Children, Leeds; the Leeds Maternity Hospital, and the Leeds Workpeople's Hospital Fund for the convalescent homes.—Mr. Henry Griffith Thomas, mining engineer, of Swansea, besides bequests to other institutions, left £1000 each to St. Dunstan's Hostel for Blinded Sailors and Soldiers and the Swansea General and Eye Hospital.—The Government of British Guiana has sent a second donation of £100 to the Ross Institute Hospital for Tropical Diseases, Putney Heath.—The late Sir Charles Brown by will left £50,716. The proceeds of his residence and effects will go to the Harris Orphanage. Preston Royal Infirmary's convalescent home, Lostock Hall, is to get two-thirds of the residue of his estate, about £30,000 or perhaps more, and Preston Borough Police Poor Children's Convalescent Home at Lytham, the income from the investment of the other third on the death of his sister. This will be about £15,000. He left £1000 to Cambridge University Research Hospital.—Mrs. Sarah Martha Grove-Grady left, among other large bequests, £4000 to the British Home and Hospital for Incurables, Crown-lane, Streatham, S.W.; £1000 to the Royal Blind Pension Society of the United Kingdom, of Southwark Bridge-road, S.E., for the benefit of female pensioners only; and £1000 to the Royal Society for the Indigent Blind, Leatherhead.—Mrs. Mary Margaret Fair Menzies or Maxwell, of Bangholm Bower, Trinity-road, Goldenacre, Edinburgh, left £1000 to the Edinburgh Cripple and Invalid Children's Aid Society and £500 to the Edinburgh District Branch of the Scottish National Society for the Prevention of Cruelty to Children, among other bequests.—Miss Elizabeth Nicholson, of Leonard-street, Keswick, Cumberland, left £2100 to the Westmorland County Hospital for three cots.—Colonel Gilbert Omerod Spence, Kirklevington, Yarm-upon-Tees, Yorks, besides other bequests, left £1000 each to the Stockton and Thornaby Hospital and the District Nursing Association.—The Royal Manchester Children's Hospital has received £1000 from the executors of Mr. John Chadwick Barlow to endow a bed.—A private donor has offered to give £5000 if the remaining £15,000 of the bank overdraft of the West London Hospital can be quickly subscribed.

RETIREMENT OF DR. G. S. MIDDLETON.—On Jan. 14th, to mark his retirement from active consultant practice, some 120 medical men from different parts of the British Isles entertained Dr. G. S. Middleton to dinner at the Central Station, Glasgow. Dr. William Sewell presided; Dr. William G. Dunn, Dr. J. B. Mackenzie Anderson, and Dr. George MacFeat acted as croupiers, and Dr. John Fergus as secretary. Dr. Sewell, who proposed the health of Dr. Middleton in a speech reminiscent of old college and hospital days, referred to the personal qualities of Dr. Middleton, to his loyalty of heart, his integrity of purpose, his fine judgment and ripe experience, and his unswerving devotion to the highest traditions of his profession. He had been a valuable assistant to the late Sir William Gairdner, and his connexion with the Royal Infirmary and the Royal Hospital for Sick Children, to which institutions he was now consulting physician, and with the Western Infirmary, had made for him many friends, several of whom were present that evening. At the end of his speech Dr. Sewell presented Dr. Middleton with a handsome solid silver salver and coffee service. Sir Hector Cameron supported the toast, to which Dr. Middleton replied. The toast of the Glasgow Medical School was proposed by Dr. C. O. Hawthorne and replied to by Dr. W. R. Jack.

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
MONDAY, Feb. 1st.—8.30 P.M., Social Evening. 9.30 P.M., Dr. F. J. Poynton: The Part Taken by Doctors in the Early Days of Aeronautics.
TUESDAY.—5.30 P.M., ORTHOPÆDICS. (Cases at 5 P.M. by Mr. W. Rowley Bristow, Mr. P. Bernard Roth, Mr. Rocyn Jones, and others. 8.30 P.M., PATHOLOGY. Laboratory Meeting at University College Hospital, W.C.
WEDNESDAY.—4 P.M., SURGERY. Clinical Meeting at St. Bartholomew's Hospital, E.C. Operations at 4.15 P.M., and demonstrations in other departments.
THURSDAY.—8 P.M., OBSTETRICS AND GYNÆCOLOGY. Specimens by Dr. McCullagh and Dr. Everard Williams. Short communications by Dr. Abercrombie and Mr. Herbert Paterson. Demonstration by Dr. Barnard. Prof. Louise McIlroy: Pulmonary Tuberculosis Complicated by Pregnancy.
FRIDAY.—5 P.M., LARYNGOLOGY. Cases and specimens will be shown at 4 P.M. 8.30 P.M., ANÆSTHETICS. Dr. C. F. Hadfield: Nitrous Oxide: Its Impurities, and the Establishment of Tests Suitable for Official Adoption.
SATURDAY.—10.30 A.M., OTOLOGY. Cases by Dr. Dan McKenzie, Mr. F. W. Watkyn Thomas, Mr. Archer Ryland, and others at 9.45 A.M.

ROYAL INSTITUTION, 21, Albemarle-street, London, W.
TUESDAY, Feb. 2nd.—5.15 P.M., Mr. Eric Rideal, D.Sc.: Surface Action.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.
MONDAY, Feb. 1st.—5 P.M., Prof. Arthur Edmunds: Pseudo-Hermaphroditism and Hypospadias and their Surgical Treatment.
WEDNESDAY.—5 P.M., Prof. J. E. Adams: The Surgery of the Jejunum.
FRIDAY.—5 P.M., Prof. Musgrave Woodman: Malignant Disease of the Œsophagus.

FELLOWSHIP OF MEDICINE AND POST GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.
MONDAY, Feb. 1st, to SATURDAY, Feb. 6th.—Fellowship of Medicine lecture, Medical Society, 11, Chandos-street. Thurs., 5 P.M., Dr. McNee: The Treatment of Renal Disease (free to members of the medical profession).—HOSPITAL FOR DISEASES OF THE SKIN, Blackfriars-road, S.E. Instruction in the O.P. Department from 2.30 P.M. Tues. and Fri., 5.30 P.M., Venereal Clinic.—LONDON LOCK HOSPITAL, Dean-street, W. Comprehensive course. Instruction in the O.P. Department daily and lectures dealing with the various aspects of V.D.—LONDON TEMPERANCE HOSPITAL, Hampstead-road, N.W. Thurs., 2 P.M., Mr. H. J. Paterson: Special clinical demonstration for members of the Fellowship of Medicine. Further information from the Secretary of the Fellowship of Medicine.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.
FRIDAY, Feb. 5th.—3 P.M., Mr. Watkyn-Thomas: Swellings of the Upper Jaw.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.
WEDNESDAY, Feb. 3rd.—Dr. Harrison: Blood-Sugar Curves and their Interpretation.
THURSDAY.—4 P.M., Mr. Doyne: Ocular Torticollis.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE will be held from FEBRUARY-MARCH, 1926.

*CLINICAL LECTURES AND DEMONSTRATIONS.*

MONDAY, Feb. 1st.—12 noon, Pathology of the Nerve Cell: Dr. Greenfield. 2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Hemiplegia: Dr. Risien Russell.

TUESDAY, Feb. 2nd.—2 P.M., *Out-patient Clinic*: Dr. Walshe. 3.30 P.M., Disseminated Sclerosis: Dr. Grainger Stewart.

WEDNESDAY, Feb. 3rd.—2 P.M., Clinical Demonstration: Dr. Gordon Holmes.

THURSDAY, Feb. 4th—12 noon, Anatomy and Physiology of the Nervous System. Dr. Walshe. 2 P.M., Out-patient Clinic Dr. Kinnier Wilson. 3 30 P.M., The Paralysed Bladder. Dr. Gordon Holmes.

FRIDAY, Feb. 5th—2 P.M., Out-patient Clinic: Dr. Adie. 3.30 P.M., Demonstration of Re-educative Exercises: Mr. Elmquist

Additional particulars will be given in further announcements.

J. G. GREENFIELD, Dean of Medical School.

NORTH EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Feb. 1st.—10 A.M., Surgical Out-patients: Mr. W. E. Tanner. 10.30 A.M., Gynæcological Operations: Mr. A. E. Giles; Throat, Nose and Ear Operations: Mr. W. Ibbotson. 2 P.M., Medical, Surgical, and Gynæcological Clinics, Operations. 6.30 P.M., Venereal Department.

TUESDAY.—2 P.M., Medical, Surgical, Throat, Nose and Ear Clinics, Operations. 4.30 P.M., Mr. T. H. C. Benians. Specimens illustrating Diseases of the Breast.

WEDNESDAY.—10.30 A.M., Surgical Operations: Mr. E. Gillespie. 2 P.M., Medical, Eye, and Skin Clinics, Operations. 6.30 P.M., Venereal Department.

THURSDAY.—10.30 A.M., Dental Out-patients: Mr. E. S. Pierrepont. 2 P.M., Medical, Surgical, and Throat, Nose and Ear Clinics, Operations. 5 P.M., Operations.

FRIDAY.—10.30 A.M., Eye Operations: Mr. N. Fleming. 2 P.M., Surgical, Medical, and Children Clinics, Operations. 3 P.M., Gynæcological Clinic. 6.30 P.M., Venereal Department.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone-road, N.W.

THURSDAY, Feb. 4th.—5 P.M., Mr. L. C. Rivett: Infant Feeding.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

THURSDAY, Feb. 4th.—4 15 P.M., Dr. Charles Singer: The History of Malaria (first of four lantern lectures, open to medical students of the University of London).

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester square, W.C.

TUESDAY, Feb. 2nd—5 P.M., Dr. H. MacCormac: Lupus Erythematosus.

THURSDAY.—5 P.M., Dr. A. M. H. Gray: Xanthoma. Herpes.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.

WEDNESDAY, Feb. 3rd.—5.30 P.M., Mr. F. Coleman: The Value of "Set" Operations on the Jaws and Teeth.

ROYAL SANITARY INSTITUTE.

FRIDAY, Feb. 5th in the Town Hall, Bradford).—3 P.M., Discussion on Child Welfare Centres and their Adjuncts. 5 P.M., Discussion on Town Planning and Improvement Areas.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINIC.

FRIDAY, Feb. 5th.—3.30 P.M. (at the Royal Hospital). Mr F. Wilson Demonstration of Surgical Cases.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE.

FRIDAY, Feb. 5th.—4.30 P.M. (at Whitworth street West Branch), Dr. F. H. Lacey: Common Ailments of Pregnancy.

## Appointments.

WHITMAN, H. D. E., L.R.C.P. Lond., M.R.C.S., has been appointed Medical Officer for the Roath medical district and the Roath and Cathays Children's Homes, S. Wales.

## Vacancies.

*For further information refer to the advertisement columns.*

*All Saints' Hospital, 49/57, Vauxhall Bridge-road, S.W.*—Non-Res. Jun. H.S. £100.

*Barnsley County Borough.*—Asst. M.O.H., &c. £600.

*Barrow-in-Furness, North Lonsdale Hospital.*—H.S. £175.

*Bolingbroke Hospital, Wandsworth Common, S.W.*—Res. M.O. £200. Also H S. At rate of £120.

*Bootle Borough Hospital.*—Jun. H.S. £125.

*Bristol Eye Hospital.*—H.S. £150.

*Dorset Mental Hospital, Herrison, near Dorchester.*—Deputy Med. Supt. and Pathologist. £575.

*East London Hospital for Children and Disp. for Women, Shadwell, E.*—S. for Nose, Throat, and Ear.

*Exeter, Royal Devon and Exeter Hospital.*—Sen. H.S. £200.

*Hertford County Hospital.*—H.S. At rate of £150.

*Hospital for Sick Children, Great Ormond-street, W.C.*—Res. Med. Supt. £300.

*Isle of Wight County Council.*—Two Asst County M.O.'s. £730 and £750 respectively.

*Leeds City.*—Chief Clin. Tuberculosis O. £1000.

*Leeds Public Dispensary.*—Sen. Res. M.O. £200.

*Liverpool Children's Hospital, Heswall Branch.*—Res. M O At rate of £150.

*Liverpool Children's Hospital, Myrtle street.*—Two Res. H.P.'s and Two Res. H S.'s. All at rate of £60.

*Liverpool Open-Air Hospital for Children, Leasowe, Cheshire.*—Res. Jun. M.O. £200.

*Liverpool Royal Infirmary.*—Hon. S. to Lock Dept.

*London Lock Hospital, 91, Dean-street, W.*—Surg. Reg. £100.

*Manchester, Ancoats Hospital.*—H.S. At rate of £100.

*Manchester Ear Hospital.*—Hon. Radiologist.

*Manchester, Ministry of Pensions Hospital, Grangethorpe.*—Jun. M.O. £350.

*Mildmay Mission Hospital, Austin street, Bethnal Green, E.*—Hon. Emergency S.

*Northampton County Mental Hospital, Berry Wood.*—Sen. Asst. M.O. £500.

*Northampton General Hospital.*—Third H.S. At rate of £150.

*Northamptonshire County Council.*—Tuberculosis Officer. £750.

*Northern Hospital, Winchmore Hill, N.*—Asst. M.O. for Encephalitis Lethargica Unit. £550.

*Nottingham General Dispensary, Broad street.*—Res. Surg. £250

*Nottingham General Hospital.*—H.S. for Ear, Nose and Throat Dept. At rate of £150.

*Queen's Hospital for Children, Hackney-road, Bethnal Green, E.*—Cas. O. At rate of £100.

*Royal Northern Hospital, Holloway, N.*—Cas. O. At rate of £90. Also Asst. Surg. O. £75.

*Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.*—Part-time Pathologist. £200.

*St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.*—H.S. At rate of £75.

*Salford Union Infirmary, Hope, Pendleton, near Manchester*—Two Asst. Res. M.O.'s. £300 and £275 respectively.

*Sheffield City.*—Jun. Asst. Tub. O. £350.

*Sheffield Royal Hospital.*—Ophth. H.S. £80.

*Southampton, County Borough Isolation Hospital.*—Res. M.O. £360.

*Swindon Borough.*—Asst. to M.O.H. £600.

*Warrington, Lancashire County Mental Hospital, Winwick*—Deputy Med. Supt.

*West Bromwich and District Hospital.*—Res. H.S. £220.

*West London Hospital, Hammersmith, W.*—Asst. Path. £250

*Wilts County Council, Venereal Diseases Clinic, Swindon.*—Part-time M.O.'s. £1 11s. 6d. per session.

THE Chief Inspector of Factories, Home Office, London, S.W., announces vacant appointments for Certifying Factory Surgeons at St David's, Pembrokeshire; and at Plymouth, West, Devonshire.

## Births, Marriages, and Deaths.

### BIRTHS.

GIBB.—On Jan. 19th, in London, the wife of James Gibb, M.A., M.B., Ch.B., Downham Market, Norfolk, of a daughter.

HINE.—On Jan. 18th, at The Ivies, Carter Gate, Newark-on-Trent, the wife of Dr. Hine, of a son.

PEGGE.—On Jan. 18th, at Elmfield-avenue, Leicester, the wife of Dr. A. Vernon Pegge, of a son.

SHIRES.—On Jan. 25th, at Welbeck street, W., the wife of Dr. Bertram Shires, of a son.

### MARRIAGES.

GREEN—ROBERTSON.—On Jan. 22nd, at All Saints' Church, Willian, Dr. Frederick Norman Green, to Margaret Campbell, third daughter of Mr. and Mrs. J. Campbell Robertson, of Nutleigh Grove, Hitchin, Herts.

### DEATHS.

BELL.—On Jan. 20th, at Thorney Court, Hyde Park gate, Dr. Robert Bell, aged 81.

DURDIN.—On Jan. 16th, at King's Lynn, Robert Charles Garde Durdin, M.D., L.R.C.P.I., L.R.C.S.I.

FOX.—On Jan. 21st, at the Royal Free Hospital, of septicæmia, Iris Fox, M.D. Lond.

MAWHOOD.—On Jan. 20th, at Green Meadows, Ascot, Reginald Hawksworth Mawhood, M.B., B.C. Cantab., F.R.C.S. Eng., aged 41 years.

PANTIN.—On Jan. 21st, at a nursing home, Boscombe, Dr. Mabel Pantin.

ROBINSON.—On Jan. 16th, at Harpur street, Bedford, George Robinson, M.R.C.S., L.M., J.P., aged 87 years.

SCORESBY-JACKSON.—On the 20th Jan., at a nursing home in London, Arabella Mary, younger daughter of the late Robert Edmund Scoresby-Jackson, M.D., F.R.S.E., &c., and sister of Dr. Margaret Scoresby-Jackson, 28, Weymouth-street, W.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## THE TREATMENT OF CONTAMINATED WOUNDS WITH BIPP AND A MODIFICATION.

By *Elizabeth L. Thal, M.D.*,

ASSISTANT AT THE HOSPITAL SURGICAL CLINIC OF THE SECOND MOSCOW STATE UNIVERSITY. (DIRECTOR: PROF. P. D. SOLOVIOFF.)

In 1916 Prof. Rutherford Morison suggested the treatment of contaminated wounds with a paste made up of bismuth, iodoform, and paraffin, and called bipp. He proposed that *septic wound cavities should be bathed with methylated* spirit and plugged with bipp, and closed by primary suture. Subsequently Morison himself only plugged small cavities and in larger ones spread the paste along the walls, whilst various modifications are in use by other surgeons, many of whom ignore the fundamental idea of the treatment—namely, cleansing and direct suture. In Germany and America the method is not much in use, and in Russia it has not been tried until recently.

### *A Modified Method.*

In the surgical clinic of the Second Moscow State University we applied Morison's method for about a year, *at first carrying out the instructions exactly and later* modifying and simplifying its details. We now use the following technique, which is simple to carry out and permits the sewing up of almost any contaminated wound:

1. The operative field is prepared by coating it with tincture of iodine.

2. The cavity is opened wide and pus and sequestra are *removed. There is no necessity, however, for any deep or* rough excision of the walls or the removal of the pyogenic membrane.

3. After careful examination of the cavity it is cleansed with pure alcohol. Excess of alcohol is removed and bleeding vessels are ligatured.

4. The walls of the cavity are mopped with a liquid of the following *composition: 8 parts of iodoform dissolved* in 25 parts of ether and 75 parts of alcohol. The ether instantaneously evaporates, the alcohol passes off, and the cavity is left uniformly coated with a thin covering of exceedingly minute crystals of iodoform which have been just precipitated. We do not traumatise the cavity *of the* abscess by rubbing in the paste, and the tissues are not eroded by a more or less massive layer *of foreign* substance. Such a mass has either to be dissolved and absorbed, or—*which is more unpleasant*—must fall out piecemeal, and it can only gradually be replaced by cicatricial tissue; the cicatrix under these circumstances is, of course, massive and indurated. When only solutions are used *the tissues* may be brought into contact by means of a sunk suture or, if preferred, by the aid *of a properly* applied compressing bandage or a plaster dressing.

5. The final act is complete suture of the skin. For the sunk stitches we use catgut, for the skin stitches silk; both these substances are previously coated with *the original* Morison bipp paste of the following composition: 8 parts of subnitrate of bismuth, 16 parts of iodoform, 8 parts of liquid paraffin.

### *Reduction of Tension.*

The whole of this process is exceedingly simple; it is reduced to the bathing of the cavity with two liquids, and occupies not more than three to five minutes. There are, however, two facts to be taken into account. *First, that* during the time of the *operation there* is a succession of a dirty and a clean moment, and it is *necessary* to cleanse oneself, the instruments, and the field of operation, as is done in any intestinal *operation. Omission of* this precaution is a cause of failure. Secondly, careful apposition of the edges *of the* skin wound must be effected without stretching them in any way For this *purpose* slight incisions into the skin in order to relax it may be made at the sides of the operative suture. It should be made a rule that *the loosening* cuts into the skin are made in all those cases where the skin at the moment of operation is *found to be* involved in the area of infiltration, because stitches in highly infiltrated skin must, of *necessity, break through* quite soon after the operation, before the infiltration has had time to complete its *retrogression*. In addition to reducing strain in the region of the suture, parallel cuts in *the skin at once remove* the high tension existing in the area of the infiltrate and ward off the formation of œdema in the *region* of operation; so that this insignificant interference should never be omitted wherever the least indication for it *exists*.

Usually after the closure of a large cavity, as above described, there is *at first a more or less* copious sero-sanguineous secretion which oozes between the stitches but does not impair the general course of healing. It does not influence the temperature curve, and only necessitates changing the gauze which covers the line of the suture, once every three or four days. *If, however, there is but little* secretion or none at all, re-dressing must be done as rarely as possible.

### *Pharmacological Considerations.*

I shall not dwell on the chemical and pharmacological properties of iodoform and alcohol and will merely point out that we were entitled to exclude bismuth not only on account of its unpleasant mechanical influence, but also because it does not *produce any considerable healing effect*. A detailed examination of bipp, carried out by Chambers and Goldsmith,[1] has shown that its bactericidal power by no means depends on the nitrate of bismuth contained in it. The latter, or rather the inconsiderable quantity of free nitric acid given off from it, is probably only a *catalyst which* accelerates the liberation of free iodine from iodoform under the influence *of oxygen*.

The modified method which we use does *not produce* iodism, nor is there any poisoning from the inconsiderable quantity of pure alcohol introduced into the body. The only question of essential importance is *whether we do not* create considerable local injury—*whether we do not* impair vital activity and hinder the progress of healing. Only if *we are able to answer this question in the negative* are we entitled to adopt so radical an antisepsis of the wound. Neither we nor other writers (few it is true) who have dealt with the bipp method have *observed* any mishap. *I will* quote two examples in which unhealthy tissues of low healing power were involved:—

(*a*) An ulcerating *cancer* of the skin on the site of previous lupus; extirpation. Extensive flap formation, the flaps being cut out of the cicatricially modified lupus skin. Careful twice-repeated "bipping" of the base and the flaps. Smooth union. A year later the patient attended again *with secondary* deposits of cancer, but the flaps were in an excellent condition.

(*b*) A purulent and diffuse tuberculous lympho-granuloma *on the neck* was opened; the cavity was treated with our modification of the bipp method and closed with sutures. It was difficult to replace in the cavity of the abscess the abundance of fungous *masses* which *had developed*. The silk stitches were passed through highly sclerosed œdematous tissue. On the ninth *day* they were removed and the wound had healed up by first intention. Two and a half weeks after the operation the patient attended and the sutured line was found in good condition. We do not know how the patient fared after this and what was the further course of his fundamental disease, but the direct *power* of healing and cicatrisation of the tissues had not suffered to any noteworthy extent.

Judging therefore by practical results, antisepsis with immediate closure of infected wounds is thoroughly justified, and we believe that theoretical considerations *afford similar* justification.

Inflammation in the tissues is *manifested* by two fundamental processes—viz., excessive osmotic *pressure*, and excessive hydrogen-ion concentration at the site of injury, which may be 50 times increased. By incision the pressure is *relieved*, and just as we do not wait to *allow an abscess* to rupture spontaneously, so we need not refuse *to alter* the chemical and physico-chemical reactions of the inflamed tissues so far as we are able. Only *on the basis of* some alteration of reaction can we explain the fact observed by Morison and others, that for a *long time* after operation cultures from the sero-sanguineous discharge from *the* wound which oozes out between the stitches will still produce a scanty growth of organisms, although all signs of inflammation disappeared from the first day.

### *Results of Trial.*

Our clinic is exceedingly poor in pyogenic material, *and the treatment above described* was applied to only 40 cases during a year. All of them were infections *by Staphylococcus aureus*. No definite deductions, therefore, can be made, but the *impression* we have received *is unquestionably* favourable. We applied the method in abscesses of the soft tissues and in varied plastic *operations* on the skin, and the flaps in these cases always united well and we did not have to concern ourselves beforehand with the asepsis of the region of transfer. Our rule was to apply it in *osteomyelitis and chondritis and* in suitable cases of tuberculosis of the bones and joints, complicated by mixed *infection*. After the operation for osteomyelitis we never observed the *sequestration of the bones which* was previously so frequent.

The regional lymphatic glands never gave any observable reaction *in our cases*, the stitches could be *removed* on the ninth to fourteenth day. The reduced local and general reaction and the comparatively early function of the operative region make clearly evident the advantages of this method, whilst even in the case of failure all that is necessary is to loosen the stitches and the patient is in the same position as a subject treated without plugging, except that his infection is more or less reduced.

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[1] L. O. Anderson and H. Chambers: The Treatment of Septic Wounds, with an account by H. Chambers and *J. N. Goldsmith* (*Reports* to the *Medical* Research Committee), THE LANCET, 1917, i., 331.

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## COLONIAL HEALTH REPORTS.

### *Gold Coast.*

A report by Mr. A. A. C. Finlay, acting Colonial Secretary, for the year ending March 31st, 1924, states that the population of the Gold Coast and its dependencies at the last census was 2,299,961. The number of Europeans resident in the Colony in 1924 was 3043, of whom 994 were officials, 97 missionaries, 1425 engaged in mercantile occupations, and 527 in mining. 2911 births and 117 still-births were registered during the year, and 3285 deaths, these figures including Europeans. The number of births stated is lower than it should be, as birth registration is still unpopular amongst the illiterate classes. The figure for deaths is approximately accurate, for no burial permits are granted without registration, the issuing of permits and registration of deaths being done by the same officer. The chief causes of death were pulmonary and intestinal diseases. The death-rate per 1000 among the European population was 7·88 and the invaliding rate 28·59. The ten deaths amongst European officials were due: two to yellow fever, two to blackwater fever, three to heart failure, and one each to chronic myocarditis, rupture of thoracic aneurysm, and cerebral embolism. Of the 14 deaths amongst European non-officials, eight were due to yellow fever, two to blackwater fever, and one each to alcoholism, fracture of skull, cerebral malaria, and cyanide poisoning. The average daily number of European officials on the sick list compared to the average daily number resident in the Colony was 2·42 per cent. Treatment was given in 5963 cases of malaria, 551 of dysentery, 534 of pneumonia, 111 of tuberculosis, 14 of plague, two of small-pox, and six of sleeping sickness. The sanitary condition of most of the large towns was fairly satisfactory. 190,513 houses were inspected during the year and the average larval index was 0·94 per cent. There were 3726 prosecutions under the Destruction of Mosquitoes Order. There was an outbreak of relapsing fever of a very mild type and low mortality-rate. Plague broke out in Sekondi, and up to the end of the year the case-mortality of the known and suspected cases worked out at 60 per cent. There has been no outbreak of small-pox, though nine cases were reported, eight in the Northern Territories and one in the Colony. The number of vaccinations performed was 82,425, and 36,468, or 44·24 per cent., were reported as successful. The efforts of the medical and sanitary authorities in promoting the treatment of disease and the knowledge of general hygiene continue to exercise a beneficial effect on the general health of Europeans. The climate, though hot and damp, is cooler than that of most tropical countries situated in the same latitude. It is not in itself unhealthy; but an evil reputation has been earned for it in the past by the prevalence of mosquito-borne diseases against which all possible precautions have constantly to be taken. The Gold Coast is peculiarly free from many of the discomforts associated with tropical countries; hot nights and intense heat by day are the exception rather than the rule, while insects are comparatively unobtrusive. The rainfall in 1923 varied as follows at the different stations: Accra, 21·16 inches; Aburi, 43·14; Sekondi, 39·29; Axim, 109·18; Tarkwa, 71·72; Kumasi, 55·75; Tamale, 36·03. At Accra the mean shade temperature was 81° F., at Kumasi 79·4°, and at Sekondi 79·8°. The mean daily range of temperature in Accra was 15·6°.

### *Gibraltar.*

Mr. C. W. J. Orr, Colonial Secretary, in the annual report, states that the estimated total civil population at the close of 1924 was 17,324, of whom 16,177 were fixed residents. These figures represent the population between sunset and sunrise; to calculate the daily population it would be necessary to add some 8000 aliens and 1500 British subjects resident in the neighbouring Spanish town of La Linea, who come into Gibraltar daily. The number of births during the year 1924 was 360, being at the rate of 22·25 per 1000, among the fixed population only; under the Aliens Order in Council no alien may give birth in the colony; 254 deaths were registered, and the crude death-rate was 14·66 per 1000. Infantile mortality was 91·6 per 1000, and deaths from pulmonary tuberculosis 1·5 per 1000. The number of deaths from cancer was 27, an increase of nine over the previous year. The general health during the year was very satisfactory. There was no disease in epidemic form. The climate of Gibraltar is in general mild and temperate, though somewhat hot and oppressive during the months of July and August. The meteorological record for 1924 showed 70·88° F. as the mean maximum temperature, the highest shade temperature being 91° on July 17th and August 19th, and the lowest, 38°, on Feb. 28th. The rainy season spreads over the period from September to May; the annual average rainfall is 35 inches, but in 1924 44 inches were registered, of which 15·17 inches fell in February.

## Public Health in West Indian Islands.

### *Cayman Islands.*

These three small islands in the Caribbean Sea are situate north-west of Jamaica (of which colony they are a dependency), and approximately midway between that island and the south-west of Cuba. Mr. H. H. Hutchings, the Commissioner, in his report for 1924, gives the estimated population as 5365. There were 139 births (26 per 1000) and only 55 deaths (10 per 1000). The general health is good. The staple food of the people consists of cassava, yams, sweet potatoes, and bread fruit, all locally grown, and the ordinary wheat and corn products by way of imports. These constitute an almost entirely starchy diet which induces mild digestive disorders. There were no epidemics in 1924. Of the 55 deaths, 16 were returned as infants, two under 20 years, and 31 between 50 and 103, 27 being persons over 70 years of age. There were three deaths from pulmonary tuberculosis and two from cancer, all persons in early life.

### *Grenada.*

The estimated population at the end of 1924 was 68,057, its density being 518·17 per square mile. The birth-rate for the year was 31·86, and the death-rate 16·8 per 1000, the latter comparing very favourably with that in other West Indian Colonies. The death-rate per 100 births of infants dying under 1 year was 11·10. Through the efforts of Lady James, an infant welfare centre was established towards the end of the year, and a creche has now been opened. The principal causes of death during the year were: diarrhœa and enteritis, 296; malaria, 108; enteric fever, 22; dysentery, 34; pulmonary tuberculosis, 52; and syphilis, 16. Grenada, in the extreme south of the Caribbean Sea, is the nearest British island to the mainland of South America, with the exception of Trinidad and Tobago. Its area is about 120 miles, but including Carriacou, an island to the north, 133 square miles. The country is mountainous and well watered by streams. St. George's Harbour, landlocked and deep-watered, is one of the most beautiful in the West Indies. The mountain spurs, clothed with forests to their summits, intersect the island into numerous picturesque valleys. There are two small lakes, formed in extinct craters, one called the Grand Etang, being situated near the centre of the island, 1740 feet above sea-level, while the other, Lake Antoine, is near the sea on the eastern coast. A sanatorium is established near the former. The climate can be classed as excellent, and from December to May is delightful. The trade winds are steadily prevalent during this period, but occasionally fail in the autumn months which are somewhat damp and hot. The range of temperature is small and tends to make the climate equable and healthy. The thermometer seldom reaches 90° F. in the shade or drops below 70°, and these occasions occur so rarely that they are specially recorded. The rainfall in the lowlands of the south is as low as 30 inches; in the mountainous centre it approaches 110 inches. At St. George's, midway between the two, the rainfall in 1924 was 81·51 inches, as compared with an average over 30 years of 74·83 inches.

### *St. Vincent.*

The general health of the island throughout the year 1924 was (states Mr. R. Walter, the administrator, in his annual report) good. The total population at Dec. 31st was 47,591. The birth-rate for the year was 37·72 per 1000, and the death-rate 16·49. The latter showed a considerable decrease as compared with 1923 when it was 22·1. Thirty cases of enteric occurred with ten deaths. Infantile mortality showed a considerable decrease, deaths of children under 1 year (excluding still-births) numbering 169 as against 237 in 1923, and the mortality-rate per 1000 births 99 as against 128. It is noteworthy that illegitimate births amounted to over 75 per cent. of all the births, and that out of 93 still-births 79 were illegitimate. The campaign against yaws was continued with success, a total of 3377 cases being treated, of which 1813 were cured. A residence was built for the district medical officer residing at Chateaubelair—a long-felt need—and various sanitary improvements were effected in the smaller towns, but the colony is still in need of a qualified chief sanitary officer to train and supervise the work of the sanitary inspectors. St. Vincent is one of the healthiest of all the West Indian islands. The climate may be divided into two seasons, wet and dry—the dry season from January to May, and the wet season from June to December. The coolest months are December to

April. The temperature throughout 1924 varied from 78·1 to 81·8° F. The mean monthly temperature was 80·2°. The rainfall at the Agricultural Experimental Station in Kingstown, 80 feet above sea-level, was 85·07 inches. Rain fell on 277 days, and the greatest fall for one day was 3·03 inches on July 29th.

## FINANCE OF VOLUNTARY HOSPITALS.

Mr. L. G. Brock, Principal Assistant Secretary of the Ministry of Health, addressing the Manchester Statistical Society on Voluntary Hospital Statistics, said that in Manchester the hospital statistics were more complete than in any other city outside of London. The report of the local voluntary hospitals committee was a model of its kind. Hospital statistics must supply answers to three vitally important questions: (1) Is the public doing its duty to the hospitals? (2) Are the hospitals solvent, judged by ordinary business standards? (3) If they are not solvent, in what directions can expenditure be reduced or income increased?

In 1924 more than 200,000 patients were treated at Manchester hospitals, but in spite of this at the end of the year upwards of 3100 persons were awaiting admission as in-patients. In general, the answer to the first question was satisfactory. The public was doing its duty to the hospitals. As regards income and expenditure, taking the voluntary hospitals of England and Wales, in 1922 there was a deficit of £203,000; in 1923 a surplus of £497,000; and in 1924 a surplus of £177,000. Industrial depression did not provide a sufficient explanation of recurring deficits. Sheffield, which had suffered from trade depression acutely, had steadily increased the income of its hospitals. Manchester was one of the black spots. The deficits on the ordinary income of the three years, 1922–23–24, were respectively £19,121, £30,378, and £18,072. In the Manchester hospitals in 1924 the percentage of the total ordinary income derived from endowments was 21·8; from patients' payments and public authorities, 32·3; and from voluntary gifts, 46·1. In Manchester the cost per bed in the various hospitals compared very favourably with the costs of similar hospitals elsewhere. It was doubtful if special whirlwind campaigns to reduce debts were really a sound method of raising revenue. They were almost always followed by a period of reaction. A steady increase of income was much more valuable than an occasional boom year. The total subscriptions to the Manchester hospitals in 1922 amounted to £55,169, and in 1924 to £81,026. If the hospitals were to retain the support of the middle classes, they must do something for them.

There was much to be said for paying wards, not as a means of raising revenue but as a means of maintaining interest in the voluntary system. If any unified appeal for new subscriptions was to be made in Manchester, it would be powerfully reinforced if some part of the proceeds could be marked for the provision of accommodation for middle-class patients, either on the lines of the Forbes Fraser scheme at Bath, or on the lines of St. Chad's Hospital at Birmingham. A most important possible source of increased revenue was workmen's contributions. The most hopeful method of developing this source of income was to establish some kind of mass contribution scheme. In urban areas probably the best known was the Sheffield scheme. At Sheffield, said Mr. Brock, the workers undertake to contribute a penny per pound a week of their wages, and the employers add 25 per cent. of the employees' contributions. In 1921 the contributions from workmen was £7,810, and from employers £2,500, and the estimated corresponding amounts in 1925 were £101,000 and £28,000. It is said that in the majority of cases the cost of collection did not exceed 3 per cent. of the gross amount collected.

## THE CLIMATES OF THE UNITED STATES.

CLIMATE may influence health in two ways: first, it may affect more or less directly the life, development, and virulence of the micro-organisms which are the specific cause of disease; and secondly, it may strengthen or weaken the individual's power of resistance against the attacks of these organisms. It must be remembered that a change of climate usually involves a change of residence, habits, occupation, and food; these are often of as great significance as the change of climate itself. Indeed, this has been recognised since the time of Hippocrates who wrote, "In chronic diseases it is advisable to go to another country."

Not since 1857, when Lorin Blodget's "Climatology of the United States" was published, has any attempt been made to give a concise and systematic account of the climates of the United States. Prof. Ward, of Harvard University, who has studied the subject for 25 years, has now given us a handy and readable volume,[1] well illustrated with graphs and maps, suitable for the purposes of teachers and students of climatology. The book also supplies such information as may be required by medical men, foresters, agriculturists, and the general public. The chapter headed Climate and Health gives a brief and unbiased synopsis of the general medical aspect of the climates of the United States. The States are fortunate in having a fair variety of climates, so that during the cold winters of the northern States one may travel south—for instance, in the eastern province to Florida. Again, during the heat of summer, one may travel to a cooler resort in the north. The western mountain and plateau region is of special interest in that it embraces the districts of Colorado which have become famous for the altitude treatment of pulmonary tuberculosis. The Pacific slope, with its great latitudinal extensions, includes a great variety of climates. It is, however, the southern coast of California which is its best known health resort, winter and spring being the favourite seasons.

The author deals only briefly with local differences between health resorts. The main part of the book deals chiefly with ordinary questions of meteorology such as temperature, frost, winds, rainfall, snowfall, humidity, sunshine, clouds, fog, thunderstorms, tornadoes, blizzards, and heat waves. There are also special chapters on Climate and Crops and the Climates of Alaska. Amongst the phenomena of more general interest discussed are heat waves, tornadoes, the Indian summer, and the Chinook wind. Spells of excessively hot weather, occurring at irregular intervals and lasting for various periods of time, are characteristic of the summers of the central and eastern United States, especially of the great Mississippi lowland, of the Ohio valley regions, and eastward to the immediate Atlantic coast. In connexion with these heat waves heat prostration and sunstroke are common. The numbers of deaths, especially those of infants and young children from cholera infantum, may become appallingly large. Dr. W. F. R. Phillips found that during the three weeks ending August 22nd, 1896, there were 2038 known deaths directly due to sunstroke, and the list was doubtless far from complete. Probably more than 12,000 cases of varying degrees of severity actually occurred.

The tornado is stated to be the most violent atmospheric phenomenon with which man has to contend. Its wind velocities are greater than those of the dreaded tropical cyclone. Its strength is superior to that of any structure which may be built to withstand it. In its fullest development it is peculiarly and characteristically American. It finds its real home in the great central lowlands of the eastern portion of the United States. Nowhere else in the world do tornadoes find equal opportunities for development. They resemble the great summer thunderstorms of the eastern United States in being typically American. They cause great damage and loss of life. The Indian summer is a more pleasing phenomenon. It comes in October or early in November after the equinoctial storms. It is usually described in poetic terms; the calm sunny days; the dry, mild, and genial atmosphere; the smoky haze which lends to the distant view a soft, indistinct, impressionistic tone and paints the sunset a glorious but subdued red; the wonderful colouring of the autumnal foliage; the welcome return, for a short space, of summer warmth following the first frosty nights and cool days of advancing winter. The Chinook wind is a characteristic feature of the eastern slope of the Rocky Mountains in Montana and Wyoming and as far south as Colorado. It is also noted elsewhere. It is a warm and dry wind, similar in all respects to the Swiss "foehn." It begins at any hour, day or night. In velocity it varies from a gentle breeze to a gale. It may blow steadily for hours or for three or four days. Extraordinary stories are told regarding the warmth of the Chinook, and we may well imagine what a welcome it receives when the preceding temperature has been 20° to 30° below zero. It is described as soft and balmy "like a summer zephyr."

## INSULIN ON THE DISTRICT.

THE work of the Cicely Northcote Trust has already been reviewed in our columns.[1] The Trust works in connexion with St. Thomas's Hospital, London, and in its sixteenth annual report, issued by the hon. secretary at 15, Chesham-street, Belgrave-square, S.W., an interesting account is given of the valuable after-care offered to diabetic patients requiring insulin. The subject of self-injection of insulin and its dangers has already been briefly discussed,[2] but the proper administration of the drug is far from being the only problem in the after-care of diabetics. These patients have to be supervised for an unlimited period; not only must they have a continuous supply of insulin, but sufficient income to obtain the necessary diet. Under the Trust's management the procedure is as follows: As early as possible the ward sister notifies the Northcote Trust worker of the probable date of discharge, and the dose the patient is needing, supplying when necessary a copy of the diet sheet. Very often special diabetic bread and biscuits and sufficient insulin for the patient to use for a week or two are given, together with a syringe, as no risks can be taken. But much planning hereafter is necessary to see that the supply is continuous. Even the need for accurate scales must be considered, and these have sometimes to be lent as they do not always form part of the household's equipment. Although the patients are instructed in the wards how to give their own injections, only in rare cases is it considered safe for this to be continued without supervision, and the services of the district nurses are enlisted to witness the injections. These injections are given twice daily, at 9 A.M. and 6 P.M., and as the patients may not have a meal until after they have had their insulin, these times have to be adhered to as rigidly as possible. This is sometimes no easy matter for the hard-worked nurse in a scattered country district.

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[1] The Climates of the United States. By Robert De Courcy Ward, Professor of Climatology in Harvard University. Boston: Ginn and Company. 1925. Pp. 518. $4.00.

[1] THE LANCET, 1925, i., 828.

[2] THE LANCET, 1925, ii., 765 and 803.

The invariable recommendation for diabetic patients is that they "must have no cause to worry." Sometimes this means a complete change of environment—perhaps a visit to the country or sea—with the necessary proviso that insulin and diet shall be provided. The economic consideration needed may be illustrated by giving two fairly typical cases.

CASE 1.—The patient required a special expensive diet and insulin. She needed a room to live in, a fire and gas or oil to cook by. The budget for these simple necessaries worked out as follows: Insulin, 6*s.*; room, rent, and storage of furniture, 11*s.*; diet, as inexpensively worked as possible, 25*s.*; fuel, oil, 3*s.* This gave a total of £2 5*s.*, which left no margin for clothes, soap, and the hundred-and-one tiny things which are scarcely counted in the budgets of those who have no financial worries. At the time of the recommendation the patient's assured income was £1 10*s.* weekly. She was uninsured and therefore could not obtain the insulin through a panel doctor, and the guardians were unable to help because her income was over scale. Had the diet been no problem, the patient could have existed without undue worry; but with the expense of a special diet this became impossible.

CASE 2.—B, aged 12. Father, labourer in country district, two sisters in service, four other brothers and sisters at school. The family shares a cottage of three rooms and there are seven mouths to feed. B returned from hospital on a large dose of insulin and an expensive diet. He is a difficult little boy to feed in any case. The mother has not only to provide the diet, but to persuade him to take the correct quantity of the correct food at the correct time. This task was cheerfully faced by his busy mother, but the question of the provision of sufficient butter, eggs, cream, and bacon was a difficult one as it could not be met out of the family budget.

It is in such cases as these that the work of the Cicely Northcote Trust and similar bodies is invaluable and irreplaceable. Such workers require cordial support and assistance.

## PECULIAR PAIN IN APPENDICITIS.

*To the Editor of* THE LANCET.

SIR,—The following cases were recently under my care.

CASE 1.—Male, aged 55. No previous history of ill-health. When called to see him at 3 A.M. he complained of vomiting and a "pain in his stomach." His bowels had moved some hours previously. Pulse 70, temp. 98·2° F. Hernial orifices normal. He was lying on his back with both legs slightly flexed. His abdomen was slightly distended. There was no rigidity or tenderness, but on deep pressure over McBurney's point he complained of great pain. No swelling or tumour of any sort could be detected, and rectal examination revealed nothing abnormal. On percussion a tympanitic note was obtained all over the abdomen. On rotating the extended right leg internally (Cope's sign) there was no increase of the pain, but on internally rotating the extended left leg he complained of pain around the umbilicus. I gave him ¼ gr. of morphia by mouth and called to see him six hours later, when the vomiting had stopped, but the paroxysms of pain in the appendix region continued, but in a milder form. He still complained of pain around the umbilicus on internally rotating the left leg. A soap and turpentine enema gave good results. He was kept in bed for a week on a light diet, with one tablespoonful of liquid paraffin twice daily. Under this treatment the pain almost ceased and his bowels moved daily. Two weeks later he was perfectly well.

CASE 2.—Boy, aged 12. Previously healthy. When called at 10 A.M. he was lying in bed in the typical appendix attitude. He complained of pain in his right side and had vomited several times. Temp. and pulse were normal. His bowels had moved the previous day. On examination the only abnormality that could be made out was pain on deep pressure over McBurney's point. He also complained of pa around the umbilicus on internally rotating his left le He was given a glycerine suppository, and hot poultices we applied to the right side of his abdomen. At 4 P.M. the pa was less, the vomiting had stopped, but his temperatu was 99·4° F. and his pulse was 100, but the pain on internall rotating the left leg persisted. The parents refusing the consent to an operation, the boy was kept in bed for a wee on a light diet, with liquid paraffin when necessary. At th end of this time he was quite recovered.

Can any of your readers tell me if these were cases of tru appendicitis, or of what used to be called perityphlitis What is the explanation of pain around the umbilicus on rotating the left leg internally? I can find no reference to this sign in the literature.

I am, Sir, yours faithfully,

Dublin, Jan. 18th, 1926. SYLVIA B. WIGODER, M.D.

## INOCULATION FOR SMALL-POX.

*To the Editor of* THE LANCET.

SIR,—Dr. John Macqueen does not point out in his article (THE LANCET, Jan. 23rd, p. 212) that, although Lady Mary Wortley Montagu *may* have made fashionable in England after 1717 the practice of inoculation, others can lay claim to priority of description in this country. Weld, in his "History of the Royal Society" (1818), details the whole affair and draws attention to two early papers in the *Philosophical Transactions.* The first paper was published in 1714: An Account, or *History,* of the Procuring the Small Pox by Incision or Inoculation, being the Extract of a Letter from Emanuel *Timonius,* Oxon., & Batav, M.D., S.R.S., dated at Constantinople, December, 1713 (*Phil. Trans.,* xxix., April, May, June, 1714, pp. 72-82). The second paper is entitled: Nova et tuta Variolas excitandi per Transplantationem Methodus, nuper inventa & in usum tracta. Per Jacobum Pylarinum, Venetum, M.D. & Reipublicæ Venetae apud Smyrnenses nuper Consulem (*Phil. Trans.,* xxix., January, February, March, 1716, pp. 393–399). It was not until June, 1716, that Lady Mary's husband was appointed ambassador to the Porte, and in a letter to England, dated April 1st, 1717, she described the practice of inoculation as she had seen it at Adrianople.

I am, Sir, yours faithfully,

E. G. T. LIDDELL.

Trinity College, Oxford, Jan. 25th, 1926.

## OLD AGE MUST COME. . .

MUCH has been written and said of the increased expecta tion of life enjoyed by the child born to-day as compared wit 50 or 100 years ago. Life insurance tables have bee readjusted and public health activity has been credited wit the extra 10 years or more to which our grandchildre may look forward with some certainty. There is, however another side to the picture, and it is not only the cynics wh have declaimed against this attempt to postpone the inevitable end. The idea of an extra 10 years of enforced idleness after a busy and interesting life does not appeal to everyone, even if hobbies and other pleasant occupations can still be enjoyed, and on reading a booklet by a life insurance company dealing with the period of old age, the thought may arise that while insurance firms may have a certain interest in keeping us alive, there is something to be envied in those fortunate individuals who meet the "old man's friend," pneumonia. The primary object of Dr. Leonard Williams's latest pamphlet "The Sere and Yellow Leaf," issued by the Legal and General Assurance Society, Ltd., is to inculcate the idea of periodical health examinations, which commends itself to all health workers and is fully in keeping with the modern slogan of prevention. With his recommendation to the elderly man of walking and other exercises, and with his emphasis on cultivating outside interests, all sane people will be in agreement. Less convincing is the impression conveyed by Dr. Williams's remarks that comfort in old age is to be eschewed. "It is the fur-lined basket by the cosy fireside which is the real enemy of man," he writes. But is not this the just reward of the professional octogenarian? And if "therein lies the secret of the sere; therein lurks the canker of the yellow leaf," the restful autumn scene on the cover of the booklet should reassure any such who is beginning to feel uncomfortable in his fireside seat. Obviously a healthy old age will be more enjoyable than one troubled by sickness and disease which might have been prevented if discovered in time at a periodical medical examination, and this sentence contains all that the booklet intends to convey.

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HOSPITAL AREAS IN EAST KENT.—A conferenc at Canterbury of representatives of the East Kent hosp has decided to appoint a joint committee for the delimit of areas and the collection of money, and to con arrangements for reciprocity of treatment.

# Some Clinical Aspects

OF

# SIMPLE GOITRE,

## WITH REMARKS ON ITS CAUSATION.

*Being the Hunterian Lecture delivered before the Hunterian Society on Jan. 25th*

BY SIR JAMES BERRY, B.S. LOND.,
F.R.C.S. ENG.,
CONSULTING SURGEON TO THE ROYAL FREE HOSPITAL.

IN the days of the great John Hunter the thyroid gland had but little interest for surgeons. It was thought to be an organ of little or no importance, its diseases were ill-understood, and surgical interference with it was hardly ever demanded. Hunter himself, I believe, never wrote anything about it. But one can easily imagine with what zeal and enthusiasm Hunter, had he practised in Switzerland at the present day, would have thrown himself into the fascinating study of the thyroid and its diseases. Their operative treatment, which modern methods alone have rendered feasible, would have been, I am sure, of special interest to him.

I do not propose, however, to speak to you of the operative surgery of the thyroid; I have already written and said much on various occasions upon this subject. But I desire to discuss some of the clinical aspects of that most common of all diseases of the thyroid—namely, simple or endemic goitre—and to deal also with its pathology and causation.

### VARIETIES OF GOITRE.

If we leave aside malignant disease, acute inflammation, and certain of the rare forms of thyroid enlargement, we are left with two main varieties of goitre. The first is characterised by excess of the cellular elements of the gland and by diminution or absence of colloid. This is exophthalmic goitre in its various forms. It appears to be essentially a hypertrophy of the gland, although this is probably not the whole explanation of the condition. Of this form of goitre I propose to say but little in this lecture. I have written about it before, and the main symptoms of the condition are well known.

The second variety is that of simple or endemic goitre, and the first point that I want to emphasise is that *simple endemic goitre is not a hypertrophy of the gland. It is essentially a degeneration.* The enlargement of the gland in the earliest stages in which I have been able to observe it consists primarily in a distension of the organ with colloid, with atrophy of the epithelial elements. In this respect it differs entirely from the goitre of Graves's disease, in which, as mentioned above, the enlargement is due to an increase in the cellular elements of the gland. This misuse of the term hypertrophy as applied to simple goitre is very widely spread in literature at the present day. It is especially found in the writings of experimental laboratory researches and in those of physicians, who presumably have fewer opportunities of seeing the inside of a goitre than have surgeons who operate upon them.

If the cause that produced the increase of colloid, almost certainly an irritant of some kind, be removed, the gland quickly returns to the normal. We see this frequently in practice. But if the cause persists, a fibrosis due to slight chronic inflammation sets in and the condition gradually becomes a permanent one. In goitres of considerable size or long duration this interstitial fibrosis may be most marked, and it is frequently accompanied by calcification. The retention of the colloid leads to the presence of small cysts which may coalesce into large ones. But nearly all the larger cysts of a goitre are formed by the breaking down of so-called adenomata. These "adenomata" are masses of ill-formed thyroid tissue, surrounded by a more or less well-marked capsule. On account of their encapsulation they play an important part in the operative treatment of goitre. The term "adenoma" is not a very correct one, but it is convenient for practical purposes. The same may be said of the term parenchymatous, which most surgeons, including myself, are in the habit of employing loosely for the general enlargement of the whole gland, as distinguished from local enlargement caused by adenomata.

### *Differential Diagnosis.*

It will thus be seen that the pathological picture of the two diseases, exophthalmic and simple goitre, is widely different. Similarly, their clinical features in typical cases are markedly dissimilar. Difficulties of diagnosis, however, arise occasionally in the early stages of both, as well as in those mixed cases which present some of the characteristic symptoms of both forms. For instance, the characteristic symptoms of exophthalmic goitre may supervene upon a pre-existing simple goitre. To this the term of "Basedowified" goitre is often applied, especially by continental and American writers. Similarly there are cases of simple goitre, especially of the adenomatous or cystic forms, which may show symptoms that are usually characteristic of the exophthalmic form—such as tremor. As long ago as 1907[1] I pointed out the existence of a group of thyroid cases which, then as now, I usually treat by operation. These display tremulousness, palpitation and some of the other symptoms of Graves's disease, but never exophthalmos. They are not cases of genuine exophthalmic goitre. Most of them are cases of more or less encapsuled tumours, cystic or solid. So far as my observations go, it is a goitre lying deeply behind the sternum which presents most often these misleading symptoms, and which is apt to be confused with true exophthalmic goitre. From an operative point of view they present few or none of the special risks attendant upon operation in cases of Graves's disease.

Many surgeons call them cases of hyperthyroidism, but I doubt whether this is really a correct term. In some the tumour is nothing but a cyst with a thick, fibrous wall or a solid mass of almost inert tissue, which can have little or no secreting action, and is certainly not a cause of hyperactivity. Some surgeons boldly include these cases in their statistics of exophthalmic goitre merely on the ground of persistent tachycardia, but I think this is quite wrong. Their inclusion leads to confusion and tends to impart an unduly rosy hue to statistics of operations. Certainly many such cases which really belong to the simple variety come to me with a ready-made diagnosis of hyperthyroidism or Graves's disease. It is important also to bear in mind that the not uncommon occurrence of a sudden hæmorrhage into a soft encapsuled adenoma may also produce a good deal of temporary tachycardia and irregularity of pulse, which produces a superficial resemblance to exophthalmic goitre. Acute catarrhal conditions may also sometimes have the same effect.

It should never be forgotten that a simple goitre may be accompanied by tachycardia which is not due to the goitre at all. I have seen numerous cases of this kind in which the tachycardia was due to an unsuspected lesion in the appendix, gall-bladder, uterus, or kidney. There appears to be but little doubt that septic foci in distant parts of the body may lead to a hyperplasia of the thyroid, but without colloid distension, and may be accompanied by tachycardia. Experiments on animals seem to confirm this view. It is noteworthy that all the forms of thyroid enlargement which were produced in animals by my friend Colonel R. McCarrison by food contaminated with fæcal matter appear to have been of the hyperplastic form only. He tells me that it was only when he added an excess of lime to the food that he succeeded in obtaining colloid distension of the vesicles.

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[1] Proceedings of the Royal Society of Medicine, Section of Surgery, Nov. 12th, 1907, pp. 36, 37.

The *differential diagnosis* between early cases of simple goitre and Graves's disease, before any exophthalmos has set in, is often difficult. Points which assist are: in Graves's disease, excitability of the patient, aspect of the face, and a preference for cold weather rather than hot; while placidity and a dislike of cold are more characteristic of a patient suffering from simple goitre. A slightly subnormal temperature, which is raised to normal by small doses of thyroid extract, shows hypothyroidism, and confirms the diagnosis of simple goitre.

In concluding this part of my subject I may say that it seems to me evident that, as far as simple goitre is concerned, we are dealing not with hypertrophy or hyperplasia of the thyroid, *but with a condition that is essentially a degeneration*. This view is in direct opposition to that which seems to be adopted by most of those who perform experiments on animals without having had much opportunity of investigating the pathological conditions of the disease as it occurs in man.

[A series of pathological specimens and photographs was here shown to illustrate the gradual transition from the early colloid goitre, with but slight fibrosis, through mixed forms with adenomatous nodules, up to the later, completely degenerated fibrous or cystic forms, often with much calcification.]

### ENDEMIC GOITRE.

I now come to the next part of my subject—namely, endemic goitre. It may be asked why should a general surgeon like myself, who has practised all his life in London, venture to express any opinion on the conditions and causation of endemic goitre. I will explain. It is just 40 years ago since I first began to take an interest in goitre, when as a very young man I was working for the Jacksonian prize of the Royal College of Surgeons. After various investigations into the anatomy and pathology of the thyroid I spent many weeks wandering about different parts of Switzerland with note-book and camera in hand, talking to Swiss surgeons and country doctors, interviewing the subjects of goitre in Swiss villages, and examining pathological specimens in Swiss museums. Since that time during 35 years I have rarely passed a year without wandering for some weeks about Europe, usually on foot or bicycle. I have visited nearly every European country, most of them repeatedly, and wherever I went I kept my eyes open for goitre. Moreover, in the pursuit of geological studies and from love of climbing, I have often been on the higher Alpine glaciers both of Switzerland and Tyrol, on the rocky summits of the Pyrenees and the Carpathians, and amid the snowfields of Norway. In this country I may also claim that there is no county that I have not visited, and from which I have not obtained some information connected with the occurrence of goitre. I have at least enjoyed unusual opportunities for learning where goitre is common and, what is equally important for our purpose, where it does *not* occur.

#### *Causation.*

This leads me to a consideration of the difficult and much-discussed problem of the causation of endemic goitre. It is needless for me to mention the numerous theories that have from time to time been put forward on this subject. They are to be found in most text-books. One of the most complete modern summaries is that of Crotti in his excellent book on goitre.

But I must say a few words about a theory that has attracted a good deal of attention lately. This is the theory that a "lack of iodine" either in food or water (or even in the air!) is the essential cause of goitre. An immense amount has been written about this both by those who know something about goitre and by those who, from their own personal observation, know little or nothing, but who copy the remarks that have been made by others. This theory, the most fashionable one at the present day, and to my mind one of the wildest, is a revival of an old view, put forward at least 75 years ago, based upon the fact that iodine is a well-known remedy for some forms of goitre. This modern revival, which comes from America, seems to depend upon chemical investigations of normal thyroids and of the enlarged thyroids of goitre. It is asserted that a goitre contains less iodine than a normal gland. This may well be the case, but in itself does not prove anything as to the causation of goitre. It is quite possible that a certain intake of iodine may be necessary for health. There is also no doubt that in some diseased conditions of the thyroid gland iodine treatment is beneficial. But to deduce from this that absence of iodine is the main, if not the only, cause of endemic goitre is, to my mind, wholly unjustifiable and totally opposed to observed facts as to the distribution of the disease. I should not have thought it worth while to devote any time to this theory were it not that it has been widely accepted in this country, not only in medical circles but also by the lay press.

In the latest (1925) edition of so excellent a book as Taylor's "Practice of Medicine" we actually read: "It has been conclusively demonstrated that endemic goitre results from lack of iodine and tends to occur among people who live far away from the sea." The writer of this statement, like many others who maintain this theory, seems to have overlooked such facts as that goitre is far more common in the Maritime Alps of France, which are close to the Mediterranean, than in many places in the centre of that country far away from the sea. Moreover, it is by no means unknown close to the sea in South Wales and parts of the Italian Riviera, as well as in many other places on the sea-coast, as I can testify from my own observations. If this part of the theory were true we should expect to find the endemicity of goitre increasing steadily as we went inland. This is certainly not the case. As far as the other part of the theory is concerned, no one has ever shown that iodine is less common in notoriously goitre-producing waters than in waters that do not produce it.

The most convincing single proof of the baselessness of the "lack of iodine" theory is afforded by what occurred in connexion with goitre at Sanawar in North India, investigated by Colonel McCarrison and fully reported by him in the *British Medical Journal* of June 7th, 1924. At a large school in an institution at that place, where a high incidence of goitre had been present for many years, he found in 1913 that over 80 per cent. of the children were affected. By his advice a new and pure water-supply was introduced in 1918. In 1922 "goitre was reported to have disappeared from the school." In the autumn of 1923, when he revisited the school, the incidence of goitre was only "2·2 per cent., or no greater than the incidence of thyroid enlargement among school-children residing in a non-goitrous district such as Delhi." He was assured by the principal that no changes had been made in the food. Samples of the new water-supply were analysed by the chemical examiner to the Punjab Government, who reported that it contained no iodine. Not satisfied with this, Colonel McCarrison "caused 25 gallons of the water to be evaporated to dryness after the addition to it of sodium carbonate. The residue thus obtained was sent to the chemical examiner for estimation of its iodine content. He reported that it contained no iodine." It was clear, therefore, "that the disappearance of goitre was not due to an increased intake of iodine either by way of the new water-supply or of food." Surely this well-attested instance of endemic goitre, ended by the introduction of a water-supply devoid of iodine, should alone be enough to demolish the "lack of iodine" theory altogether.

#### *Geological Considerations Bearing on Endemic Goitre.*

I turn now to some geological considerations which are, I think, not without importance in connexion with our subject. I will first of all point out where the great centres of endemic goitre throughout the world are to be found, places where in some parts everybody has goitre to a greater or less extent. [Maps were here shown.] In Europe there is a good deal in the Pyrenees, and then along the whole length of the Alps, from the Maritime Alps, through Savoy and right along the Swiss and Italian Alps and far into Eastern Austria, gradually decreasing until we come to the great Hungarian plain from which, as far as my observations go, goitre is, in the main, absent. In the northern parts of the Carpathians I have seen but little of it, but in Transylvania there is again a good deal. It must be noticed, however, that it is not so much in the higher regions of all these mountains that goitre is most prevalent, but rather in their lower parts and in the foot hills that slope away from the central axis. In the case of Switzerland, so far as published maps are concerned, and in this respect my own limited observations tend to confirm them, it is in the lower portion of the upper Rhone Valley above Martigny, and in the cantons of Berne, Fribourg, and Aargau, that the disease is most prevalent. Passing on into Asia, although no maps of goitre distribution (so far as I am aware) have been published, I have overwhelming information, both from published and private sources, that goitre is extremely prevalent along the whole length of the Himalayas from Cashmere to Assam and beyond and on the lower ground sloping away from these mountains, and even sometimes far out into the plains The Andes, the Cordilleras, and the Rocky Mountains in America, as well as the Alps of New Zealand, are notable centres of endemic goitre All these mountains are, as every geologist knows, young mountains in the geological sense—i.e , mountains in which active denudation or erosion is taking place In the composition of practically all of them there is much limestone.

Turning for a moment to other mountains, there are three groups on which goitre is not markedly prevalent First, the older worn-down mountains, where the process of denudation is usually only slightly active and which are mainly the remnants of vanished higher ranges An instance of this is seen in the Highlands of Scotland Secondly, the older crystalline rocks, seen, for example, in Western Norway Thirdly, mountains composed entirely of volcanic rocks, such as active and extinct volcanoes It is worthy of note that the two last varieties possess *no limestone*

Let us return now to the characteristics of the younger mountain chains already mentioned, in most of which endemic goitre abounds. Most of them are crowned by glaciers, especially in the regions where goitre is most common No student of geology need be reminded of the constant grinding and denuding action of these slowly moving rivers of ice. Even the casual traveller in Switzerland must have noticed the turbidity of these glacial rivers that bring down into the lakes an immense amount of mineral matter in the form of finely ground up rocky material in suspension. He can scarcely have failed to notice the discoloration of the water of all the Swiss lakes, varying in hue from a greenish tinge to the beautiful blue of Lake Geneva. This discoloration is due, of course, to the extremely fine sediment suspended in the water How different from the mechanically pure and therefore clear waters of the lakes of such a mountainous country as the Highlands of Scotland, the geologically old mountains already alluded to This is possibly, I might say probably, one of the reasons why Glasgow, which gets a pure supply of water from a highland lake, is immune from goitre A similar state of affairs seems to exist in the Himalayas Over and over again do we read of the turbidity of the waters descending from these mountains.

But it must not be supposed that I am claiming that glaciers are essential to the production of a goitre-producing water In Switzerland plenty of the smaller streams and springs do not come directly from glaciers. Many of them come from the great accumulations of glacial debris overlying the central plain of that country, or from the great series of sandstone and limestone that underlie it. On a smaller scale erosion and consequent sedimentary pollution of streams occurs in any hilly country where the rocks are comparatively soft and easily eroded, as in the case of calcareous marls and many others.

The geological structure of the rocks on which goitre occurs is a very difficult subject into which I cannot now enter It must suffice to say that there is in general a connexion between the distribution of goitre and the water derived from calcareous soils of various kinds But many errors have arisen from hasty conclusions drawn merely from a comparison between geological maps and those of goitre distribution It is the water derived from these rocks and not the geological names of the geological formations that we have to take into consideration. England is not a very good country for the study of the geological distribution of goitre, partly for the above reason Partly also because of the widespread distribution of the disease throughout this country, and the complex geological structure of the land, which has led to the description of the country as the paradise of geologists, since practically no formation is unrepresented All this makes the study particularly difficult.

To my mind there is abundant evidence that the *cause of endemic goitre is to be found in drinking* water, and though I fully admit that the actual nature of the poison is not definitely proved, I am inclined to think that in the minute particles of inorganic mineral matter (probably calcareous), suspended in the water, we find, even if not the actual poison, at any rate an essential accompanying factor When visiting various goitrous districts I have been struck by the frequency with which the disease occurs among people who habitually drink turbid waters, and time after time I have been told the same story—that in certain districts goitre has disappeared or has greatly diminished since the introduction of a new and better water-supply Undoubtedly much more attention is directed nowadays to the importance of the water-supply in connexion with endemic goitre, but whether the action taken in consequence is always wise is questionable. For instance, the adoption of the "lack of iodine" theory by medical officers of health has led to the practice of adding iodine to public water-supplies both in America and Switzerland and also in this country Whether this is a good method of administering iodine for the prevention or cure of goitre has led to much controversy both here and abroad. Some advocate the alternative method of giving it in sweets or chocolate to school-children, or adding it to salt. This practice of the *indiscriminate* administration of iodine, though it may be suitable to places with high endemicity like many parts of Switzerland, is hardly necessary in England.

I may refer to an excellent paper on the subject by Dr James Wheatley,[1] M.O.H for Shropshire, who gives the preference to the iodisation of salt, and to another by Sir Alexander Houston,[2] Director of Water Examinations, Metropolitan Water Board. It is to be regretted that both these writers appear to accept fully the lack of iodine theory There is at least some evidence that iodine poisoning may occur from the indiscriminate administration of iodine

### CONCLUSIONS.

In conclusion I will sum up the points upon which I have tried to lay stress, as follows:—

1. Simple endemic goitre is not a hypertrophy but essentially a degeneration of the thyroid gland. The gland is not over-active, but under-active.

2 Whatever may be the connexion between iodine and the thyroid gland, there is no reason for believing that a lack of iodine has anything to do with the causation of endemic goitre, as found in the human subject.

3 It is quite certain that, at least in the vast majority of cases, the disease is produced through the *agency of drinking water*

4 There is much evidence that practically all waters which produce goitre contain frequently,

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[1] Journal of the Royal Sanitary Institute 1926, xlvi., No 7

[2] The Medical Officer, Jan. 24th, 1925, p 41

although not necessarily at all times and seasons, mineral matter in suspension, usually in an extremely fine state of subdivision.

5. There is also a good deal of evidence that this mineral matter is generally of a calcareous nature.

6. Organic matter in suspension, although capable apparently of causing a hyperplasia of the gland, at least in animals, has not been proved to be the cause of endemic goitre as seen in man.

# NEW FACTS CONCERNING THE FAT-SOLUBLE VITAMINS.

*Delivered at a Meeting of the Section of Comparative Medicine of the Royal Society of Medicine on Jan. 27th, 1926,*

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CONSIDERABLE progress in the study of the fat-soluble vitamins has been made since McCollum and Osborn and Mendel in 1913 first observed the marked influence on growth which certain animal fats exhibit in contrast to the inactivity of the majority of vegetable oils.

For a number of years it was considered that this physiological action of animal fats was due to the presence of a substance to which the name "fat-soluble A" was given. It was demonstrated quite clearly by extensive experiments in America and Great Britain that this substance, whatever its nature, is essential for the growth and well-being of young animals, but it was not until E. Mellanby carried out his well-known researches on the causation of rickets that the influence of certain foodstuffs in facilitating the deposition of lime in developing bone was traced to a dietary factor of the same type.

### *The Ætiology of Rickets.*

It will be remembered that at the time Mellanby published his researches there were two conflicting schools of thought regarding the ætiology of rickets. On the one hand a considerable number of authorities regarded the disease as being primarily due to defective hygienic surroundings, in particular lack of sunshine and exercise, whilst on the other certain observers were inclined to regard it as due to defective diet. The experiments of Mellanby made it clear that rickets can be produced at will in experimental animals by depriving them of a dietary constituent similar as regards its distribution in natural foodstuffs and its general properties to the vitamin that had been discovered by the American investigators in 1913.

Mellanby was careful not to assume the identity of the two factors, and for a period there was some confusion in the minds of scientists as to whether the growth-promoting and antirachitic properties of a foodstuff such as cod-liver oil were due to one or more than one factor.

We owe it to the researches of McCollum at Johns Hopkins University, Baltimore, that a clear differentiation between the substances responsible for these two effects was made. McCollum demonstrated that the rate of destruction of the growth-promoting and antirachitic potency of cod-liver oil were destroyed at very different rates by subjecting the oil to oxidation. Furthermore, he ascertained that certain natural foodstuffs may show powerful activity in preventing rickets without any marked effect on growth or vice versa. It appeared very probable, therefore, that at least two substances of the fat-soluble vitamin type occur in cod-liver oil, and for purposes of classification these are to-day termed vitamin A and vitamin D, the former term being applied to the substance more particularly affecting growth, and the latter referring to the factor playing a part in the deposition of lime in bones.

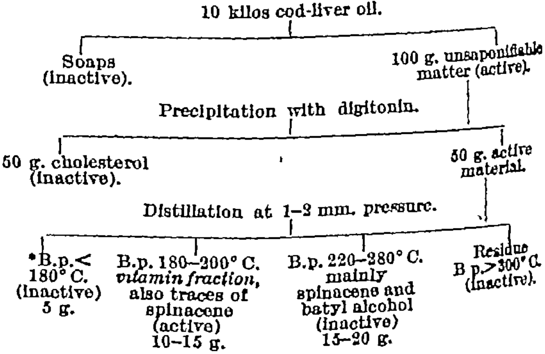
### *A New Fat-soluble Vitamin.*

Before passing on to consider in detail recent investigations regarding these two interesting subjects, I should like to draw attention to the important researches by Prof. H. E. Evans, of California, which have proved the existence of a third vitamin of the fat-soluble class playing an extremely important part in reproduction. As yet information concerning the chemical nature of this substance is meagre, but in my laboratory we have satisfied ourselves that the factor discovered by Evans is distinct from either vitamin A or D, and we have confirmed his main conclusions regarding its action. This newly discovered factor is now termed vitamin E. It is, I think, a most interesting fact that the attention of both biochemists and physiologists is at the present time being turned away from the true fats themselves, and is being directed to the examination of the small traces of substances which usually accompany the glycerides as they occur naturally.

It will be remembered that the majority of natural oils and fats, such as cod-liver oil, consist of about 99 per cent. true fats—i.e., glycerides—and some 1 per cent. substances which resist the action of potash when fats are broken down into glycerol and soap in the ordinary saponification process. This 1 per cent. is termed the unsaponifiable matter. In the past this fraction has attracted very little notice, and interest has centred entirely round the digestibility and nutritive value of the large proportion of true fats present in the oil. The discovery that the unsaponifiable fraction, if prepared with care so as to prevent secondary changes, in particular oxidation, occurring, contains the whole of the vitamins present in the original oil has, as I say, diverted attention to the examination of this fraction.

### *The Nature of Vitamin A.*

I will first bring to your notice some few details of our own attempts to isolate and to determine the nature of the vitamin A, which appears to be largely responsible for the beneficial influence which cod-liver oil has on growth. The unsaponifiable matter prepared from cod-liver oil has been submitted to chemical fractionation according to the scheme given below:—


10 kilos cod-liver oil.
Soaps (inactive).
100 g. unsaponifiable matter (active).
Precipitation with digitonin.
50 g. cholesterol (inactive).
50 g. active material.
Distillation at 1–2 mm. pressure.
*B.p.< 180° C. (inactive) 5 g.
B.p. 180–200° C. vitamin fraction, also traces of spinacene (active) 10–15 g.
B.p. 220–280° C. mainly spinacene and batyl alcohol (inactive) 15–20 g.
Residue B.p.>300° C. (inactive).

* B.p. = boiling point.

From this table it will be observed that we have succeeded in separating the active substance from a number of other constituents of unsaponifiable matter, but I regret to say we have not yet achieved the separation of the vitamin A in what can be considered to be the pure condition.

Some of you will recall a statement in the lay press a few weeks ago that the Japanese investigator, Takahashi, had succeeded in isolating vitamin A as a pure compound. We have critically examined his work and have satisfied ourselves that his preparations are not more pure than those which we have obtained. It may be of interest to discuss the rather extraordinary potency of the preparations which have been obtained by this fractionation.

The experimental animals employed in these investigations are usually rats. A rat of 100 g. body-weight will consume during the day approximately 15 g dry weight of food. If this food be deficient in vitamin A the animal will completely fail to grow, and in due course will decline in weight and die. In order to keep the rat alive, to maintain health, and to permit a normal rate of growth it is only necessary, as we have found, to supplement his deficient diet with an amount of active fraction weighing 1/200th mg You will, I think, agree with me that this dosage is of so small an order as to recall the effective doses of internal secretions and of certain drugs.

I fear I cannot give any clear idea, as yet, of the chemical nature of vitamin A, but the very highly active fractions we have obtained largely consist of unsaturated higher alcohols, containing in their molecules only the elements carbon, hydrogen, and oxygen. It is possible that the vitamin is actually one of these alcohols, but until we have prepared it in undeniably pure condition it would be unwise to draw such a conclusion It will be agreed, at any rate, that we must abandon all ideas of the vitamin being a labile, ill-defined compound as we at one time imagined, when it is so readily demonstrated that it can survive such drastic chemical treatment as saponification with boiling alkalies and distillation at temperatures over 200° C

I will not say more about vitamin A beyond mentioning that Dr O Rosenheim and I have recently described a simple colour reaction that we believe is caused by it and which is proving of great use in detecting the presence of the active substance. I must now pass on to give a brief review of

### *Recent Knowledge concerning Vitamin D*

As pointed out above, McCollum's work clearly differentiated vitamin A from vitamin D, but this advance did not at once help to reconcile the two conflicting schools of thought regarding the causation of rickets. The reconciliation seems to-day to have been accomplished and the story of its achievement is one of the most fascinating which recent scientific progress has presented.

In 1919 Huldschinsky observed that children suffering from rickets were rapidly cured on exposure to sunlight, or to the light of lamps which emit rays in the ultra-violet part of the spectrum. This striking observation soon received general confirmation, and some glimpse was then obtained of the line upon which one might correlate the views of the two opposing groups of scientists But, welcome as some prospect of clearing up this difficult matter was there still remained the task of determining why rickets could be cured equally well by exposing the patient to ultra violet light or by administering a substance such as cod liver oil

The first clue that led to a solution of this problem was provided by the careful work of the American investigator Steenbock, who discovered the remarkable fact that a food mixture which, by reason of its deficiency will give rise to rickets in animals, becomes endowed with antirachitic potency after it has been exposed to ultra violet light. Two possibilities suggested themselves to account for this On the one hand, it was possible that the treated fats absorbed ultra violet rays, and that the energy so absorbed was later emitted in the form of secondary radiations, which effected a curative action similar in character to that produced by direct exposure to the primary radiations. On the other hand—and it seemed a more attractive hypothesis—it was possible that the absorption of the short wave length radiation actually produced in the foodstuffs a substance of the type of antirachitic vitamin D It was comparatively an easy matter to examine one by one the constituents of the food mixture, and this examination soon revealed that the precursor of the physiologically active substance is present in the oil or fats The examination of such activated fats revealed that the conference of antirachitic potency could be traced to the action of ultra violet light on a constituent or constituents of the unsaponifiable fraction One of the most commonly occurring substances in these unsaponifiable oils and fats is the familiar substance cholesterol—a substance of almost universal distribution in living cells

Dr Rosenheim and Mr T A. Webster and I were able to show, simultaneously with Steenbock and Hess in the United States, that cholesterol, or the very closely related compound, phytosterol, is the parent substance of the antirachitic vitamin. It is possible to take the purest specimens of cholesterol—and it is a substance which can be prepared in a state of considerable purity—to expose it to ultra violet light for an hour or two under suitable conditions, and to obtain thereby a product showing an extremely powerful antirachitic action. This activated cholesterol, if we may so term it, shows little or no effect on growth, nor does it show other properties of vitamin A, so that it may now be definitely accepted that these two substances A and D are distinct.

As yet the chemical investigation of the substance produced from cholesterol by the action of ultra-violet light has not revealed the chemical nature of the active substance It should, however, prove possible to obtain a fairly large amount of this material, to fractionate by some such process as I have already described, and then to obtain the antirachitic substance in a pure state and ascertain its nature and properties.

I have presented these questions very much from the biochemical aspect I have done this because I am in my own researches primarily concerned with the biochemical problem of determining the chemical nature of these remarkable substances and ascertaining their physiological action, and I shall be satisfied if I have made clear the following points

In the first place, there can be no question, I think, that there has been satisfactory differentiation between these two fat-soluble vitamins A and D and that both of them appear to be physiologically efficient in amounts so minute compared with the quantities of ordinary foodstuffs that are required by the body that in looking for parallels one can only call to mind the action of agents such as the secretion of the thyroid gland or of certain drugs In the second place, I rather hope that I have dissipated from the minds of any who still retain it the old and erroneous idea that the vitamins are hypothetical substances, or that, if they exist, they are substances of ill defined character comparable with the enzymes or the toxins

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# TUBERCLE BACILLI IN FÆCES

## A NOTE ON THE EXAMINATION OF THE FÆCES OF 225 TUBERCULOUS CHILDREN *

BY KATHLEEN A. H. SYKES, M.D LOND

THAT many patients swallow a large proportion of their sputum has long been recognised. This is especially true of women and children, but, owing to the frequent difficulty of diagnosis in children, the importance of obtaining definite evidence of tuberculosis, either by examination of the sputum if it can be obtained, or by other methods if it cannot, is obvious, and hence any method which will help to this end is of value. The results which have been obtained by examination of the fæces for tubercle bacilli in this series of cases are such as to show that this method is of importance, and should be more widely known and practised.

A number of workers have endeavoured to examine swallowed sputum as it is at length excreted mixed with fæcal matter in adults, but Inman,[1] in 1910, first applied this method to children. He examined the stools of seven children under 10 years of age, and found tubercle bacilli in one case from which no sputum could be obtained. He remarked that "the method suggests itself as particularly useful in the investigation of children," but added these results are too few to admit any conclusions being drawn from them." Emerson,[2] in 1913, wrote that "the diagnosis of pulmonary tuberculosis has been made in this way—i.e., by finding tubercle bacilli in the fæces—especially in children." Chandler and Stobo[3] in a recent paper emphasise the value of this method of examination, but only five children are included in their short series of cases.

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* Being an abstract of a thesis accepted for the degree of M.D Lond , and published with the consent of the authorities of London University

For the purpose of this investigation over a period of 12 months (July, 1923–July, 1924) all cases admitted under the writer's care either for observation for suspected pulmonary tuberculosis, or with a diagnosis definitely implicating the lung, have had their fæces examined for tubercle bacilli as a routine. In addition, and as controls, a number of cases of tuberculous peritonitis, cervical adenitis, and children not suffering from tuberculous disease have also been investigated. In all a total of 225 cases have been examined, the ages of the children varying from 2 to 16 years.

### *Technique.*

The methods that have been employed are:—

(*a*) Examination of direct smears from the surface of constipated stools.

(*b*) Concentration methods.

1. Examination of the deposit after a small piece of fæces has been thoroughly mixed with normal saline and then centrifuged.

2. Examination of the deposit both with and without centrifugation after a portion of fæces has been treated for two hours with antiformin.

3. Examination by ligroin method. This method is carried out as follows: A piece of fæces the size of a walnut is ground up in a mortar with sufficient saturated solution of sodium chloride to produce an emulsion of the consistency of cream. To this emulsion 2 c.cm. of a mixture of 1 part of ligroin and 2 parts of acetic ether are added and the whole intimately mixed, then filtered through three layers of sterile gauze into a clean test-tube and allowed to stand for 20 minutes. With a sterile pipette a few drops of the layer immediately beneath the ligroin acetic ether layer are withdrawn, expressed on to a slide, spread and fixed by heat. This method is a modification of that first used by Lange and Nitsche.[4]

*Staining of Slides.*—The slides were stained with warm carbol-fuchsin solution for eight minutes, washed, decolorised in 25 per cent. sulphuric acid solution for one hour, washed, and then decolorised in absolute alcohol for 15 minutes, after which they were washed and counter-stained with methylene-blue.

The direct method (*a*) has been found unreliable when tubercle bacilli are scanty. The antiformin method, though reliable, is protracted. The ligroin method has been found reliable and convenient, and is recommended. No slide has been pronounced positive until at least three typical tubercle bacilli have been seen, and in doubtful or negative cases a search for at least 20 minutes has invariably been made.

### *Evidence as to the Bacilli found in Fæces being Tubercle Bacilli.*

At one time there was a widespread belief that human fæces contain non-pathogenic acid-fast bacilli. Fried[5] says "that this belief has no foundation," and Alexander,[6] as a result of his investigation states that "the inference follows that all acid-fast bacilli in the fæces are tubercle bacilli."

From the present research it would appear that the acid-fast bacilli found were tubercle bacilli for the following reasons:—

1. No other common bacillus will retain the carbol-fuchsin stain after one hour in 25 per cent. sulphuric acid followed by 15 minutes in absolute alcohol. The *B. lepræ* and the bacillus of Johnes' disease in cattle are stated to share this property, but they may be discounted in connexion with the cases here investigated.

2. *Animal Inoculation.*—Dr. S. Roodhouse Gloyne, pathologist at Victoria Park Hospital, very kindly carried out this special examination for me, and I take this opportunity of expressing my indebtedness to him.

Small portions of fæces from three patients in whom the fæces showed acid-fast bacilli but from whom no sputum could be obtained were forwarded to Dr. Gloyne, who inoculated guinea-pigs with them. In one case the guinea-pig died five weeks later from tuberculosis. In the second case the guinea-pig remained healthy, and on examination six weeks after inoculation showed no tuberculous lesions, but the patient subsequently coughed up sputum which contained tubercle bacilli, so the presumption is that the acid-fast bacilli found were tubercle bacilli, and that either the portion of fæces inoculated was free from these bacilli, or that they failed to infect the guinea-pig owing to some other reason. In the third case four guinea-pigs were inoculated on two separate occasions, but died of *B. coli* infection within 48 hours, so that a sufficient period did not elapse in which tuberculosis could develop.

3. All cases whose sputum contained tubercle bacilli showed acid-fast bacilli in the fæces, and no case in which the sputum was negative for tubercle bacilli on repeated examination ever showed acid-fast bacilli in the stools.

4. *Food.*—It has been suggested that acid-fast bacilli in fæces may be derived from certain foods, particularly milk and butter. The diet of this series of cases included milk, margarine, and, in some cases, butter, but in no case of tuberculous peritonitis, adenitis, or patients not clinically tuberculous (controls) who were taking a similar diet were acid-fast bacilli found in the fæces.

5. *Post-mortem Evidence.*—Two patients who never coughed up any sputum, but whose fæces showed acid-fast bacilli, came to post-mortem examination. Both cases showed typical tuberculous lesions of the lung, and in one case smears from the tuberculous lung showed tubercle bacilli. A smear was not taken from the lung in the second case.

6. *Subsequent Evidence from Sputum.*—Three patients whose fæces gave a positive result, but from whom no sputum had been obtained up to the time of this examination, subsequently coughed up sputum containing tubercle bacilli.

Further confirmatory though less substantial evidence is obtained from a study of certain of the cases. Thus in 25 patients from whom no sputum could be obtained, but whose fæces showed acid-fast bacilli, the signs and symptoms of pulmonary tuberculosis were sufficient to warrant this diagnosis. As is shown later, the subsequent course of such cases is very similar to that of those whose sputum contained tubercle bacilli.

### *Evidence as to the Source of the Acid-fast Bacilli being Tuberculous Areas in the Lungs.*

Rittel-Wilenko[7] holds that ulceration of the intestines is almost always found where acid-fast bacilli have been discovered in the fæces. Twenty-eight of the 54 cases she investigated came to autopsy, but it has been pointed out by other writers[8] that in such advanced cases 71–81 per cent. show intestinal ulceration whether acid-fast bacilli have been found or not, so that the evidence she submits is not convincing. Other writers[9] consider that "the occurrence of tubercle bacilli in the fæces is independent of an intestinal lesion"; while Fried thought that such an occurrence might have a double origin either from the discharges from an intestinal ulcer or from swallowed sputum.

That intestinal ulceration is not necessarily the source of such bacilli is shown by the case of M. K., who had moderately extensive disease of the lungs, but no sputum could be obtained from her. Her fæces contained acid-fast bacilli. Three weeks after examination of the fæces she died of tuberculous meningitis. The post-mortem examination, beside confirming the diagnosis of tuberculous meningitis, showed that the left lung was infiltrated with tubercle, the apex of the upper lobe showing commencing cavitation, and the right upper lobe was also tuberculous. Smears from the cut surface of the tuberculous area showed tubercle bacilli in abundance. On careful examination no lesion of the intestinal tract could be found.

That tuberculous ulceration of the intestine need not necessarily give acid-fast bacilli in the fæces is demonstrated by the case of M. B. In this patient disease of the lung had not been suspected during life, the child had never been known to cough while under observation, and had had no blood or mucus in her stools. The fæces were twice examined with a negative result each time. She died, and at the post-mortem examination numerous tuberculous ulcers were found in the intestines. At the apex of the left upper lobe there were some small cavities filled with dry semi-caseous contents which showed tubercle bacilli on microscopic examination. Apparently the lung disease was quiescent, and therefore no sputum was being swallowed.

Alexander[4] examined the fæces of six patients with tuberculous glands, and of these two gave a positive result. In these two cases the glands were noted as being "very caseous," but no note is made as to the condition of the lungs. The writer has examined the fæces of five cases of tuberculous glands without lung involvement, in two of which tubercle bacilli had been found in pus aspirated from the glands, and all five cases were negative. Ten cases of tuberculous peritonitis without lung involvement were also examined and these proved negative also.

Various authors have referred briefly to a variation of the number of acid-fast bacilli in the fæces corresponding to variations in the amount of sputum swallowed per day. The case quoted above (M. B.) rather bears out this point of view, and the following case is also confirmatory. This patient (S. B.) coughed up some sputum containing tubercle bacilli on one occasion prior to admission. Ten weeks later she was admitted to hospital, and on examination her general condition was found to be good, she had no cough nor sputum, and the examination of her fæces was negative. Nine months later she had a relapse with cough and general malaise, but no sputum. Her fæces were now found to contain acid-fast bacilli.

It is not unusual for children whose sputum has shown tubercle bacilli to cease to expectorate as their condition improves although cough may persist. In such cases I have found acid-fast bacilli persisting in the fæces for periods up to 11 months after the last specimen of sputum had been obtained.

### *Discussion.*

A study of the evidence submitted shows that there is little doubt that the acid-fast bacilli found in the fæces of children suffering from pulmonary tuberculosis are tubercle bacilli. Further, it would appear that in the majority of cases in which bacilli are thus found they are derived from sputum which has been swallowed. The possibility of such bacilli being derived from tuberculous ulceration of the intestine had been considered, and though the evidence is small, it is such as to suggest that this is not frequently the source.

### *Analysis of the Cases Investigated.*

1. *Sputum T.B.+. Fæces T.B.+.*—Fifty-two cases were investigated. In all these cases the physical signs were well marked, the sputum contained tubercle bacilli, and acid-fast bacilli were present in the fæces.

2. *Sputum previously T.B +. Subsequently no Sputum for not less than two months. Fæces T.B.+.*—Five cases examined, all of whom showed definite clinical signs. Their sputum had contained tubercle bacilli, but they subsequently improved, and had not expectorated for a period of not less than two months. Acid-fast bacilli were found in the fæces at intervals at 2, 2, 5, 10 and 11 months after the last positive sputum result.

3. *Sputum T.B. 0. Fæces T.B.+. Sputum subsequently T.B.+.*—One case. This child had signs of disease of the apex of the left upper lobe. The sputum when first examined showed no tubercle bacilli, but the fæces 25 days later contained acid fast bacilli. A specimen of sputum containing tubercle bacilli was obtained three months after examination of the fæces.

4. *No Sputum. Fæces T.B.+.*—Twenty-seven cases. Of these 18 had definite signs of pulmonary tuberculosis, in six others the signs were well marked, but were indicative of fibrosis of the lung, and in the remaining three the physical signs were slight, but suggested the probability of a lesion of the lungs. At the time of the examination sputum could not be obtained from any of these cases, but the fæces showed acid-fast bacilli in all. Three of the cases coughed up sputum containing tubercle bacilli subsequently, the interval after the examination of fæces being three days in one case, 21 days in the second case, and 41 days in the third case.

5. *Sputum had been T.B.+, but was T.B. 0 at time of Examination. Fæces T.B. 0.*—In three cases with well-marked physical signs over the greater part of both lungs tubercle bacilli had previously been found in the sputum. At the time of examination the sputum did not contain tubercle bacilli, nor were acid-fast bacilli discovered in the fæces. The interval between the T.B.+ sputum result and the examination of the fæces was one month in the first case, two months in the second, and seven months in the third.

6. *Sputum absent, but previously T.B.+. Fæces T.B. 0.*—Five cases, all with definite clinical signs. In these cases the sputum had contained tubercle bacilli, but at the time of the examination these patients were not coughing up any sputum. The fæces gave a negative result in all. The intervals between the T.B.+ sputum result and the examination of the fæces were 1, 3, 4, 11 and 11 months.

7. *Sputum T.B. 0, subsequently T.B.+ once. Fæces T.B. 0.*—In one case in which the signs were those of a pleural effusion on the left side both sputum and fæces examination gave negative results, but three months later this patient coughed up sputum containing tubercle bacilli.

8. *Sputum T.B 0. Fæces T.B. 0.*—In 31 cases in which the sputum examination was negative for tubercle bacilli the fæces also gave negative results. Of these cases 11 had evident physical signs upon which the diagnosis of pulmonary tuberculosis was made; in 12 the signs were those of fibrosis of the lung; in eight the only physical signs present were slight impairment of percussion note at one or other apex with in some cases altered breath sounds.

9. *No Sputum. Fæces T.B. 0.*—In 50 cases from whom no sputum could be obtained the examination of the fæces proved negative. In 10 of these the lung signs though not extensive were evident; 25 gave signs of fibrosis of the lung, and in 15 the only physical signs present were some alteration of the percussion note at one or other apex with, in some cases, weakened breath sounds.

10. Ten cases of tuberculous peritonitis, without lung involvement, were examined, but in all the result of the examination of the fæces was negative.

11. Five cases of tuberculous cervical glands, without lung involvement, gave a negative result on examination of the fæces. In two of these pus aspirated from the glands contained tubercle bacilli.

*Controls.*—Twenty-nine cases. A number of patients, suffering from other diseases or with no physical signs of disease, were examined as controls, and in all these the results obtained from the fæces were negative. In the majority no sputum was being expectorated, but in those with sputum the examination of the sputum was made with a negative result. The following is a list of these cases.

One case of bronchiectasis. Sputum T.B. 0.

One case of thickened pleura following a pleural effusion four years before. Sputum T.B. 0.

Three cases with no physical signs. Sputum T.B. 0.

Thirteen cases with no physical signs of disease and no sputum.

Eleven cases suffering from other disease such as enlarged tonsils and adenoids (1), bronchitis (1), pyonephrosis (1), rickets (1), congenital morbus cordis (1), debility (1), congenital syphilis (1), tuberculous dactylitis (1), and thickened pleura (3 cases). In all these cases no sputum was available.

### *Value of the Method in Diagnosis.*

A study of the analysis of the cases shows that in 100 per cent. of cases in whom the sputum consistently showed tubercle bacilli such bacilli were demonstrable in the fæces. Further, in no case in which the sputum result was negative on repeated examination could tubercle bacilli be found in the fæces.

The fæces of 85 cases gave a positive result, and of these 57 showed tubercle bacilli in their sputum at the time of the examination of the stools, and in four other cases tubercle bacilli were subsequently found in the sputum. Thus of the 85 cases 61 gave a positive sputum and fæces result, and 24 a positive fæces result only. In the majority of these patients the symptoms and physical signs were sufficiently marked as to leave little doubt as to the diagnosis, but the advantage of obtaining definite confirmatory evidence when no sputum is available in such a high proportion of cases (24 out of 85) is sufficiently obvious to need no stressing.

Where the clinical signs are not so definite the results of the examination still show its value. Thus of the 225 cases examined 181 were diagnosed on clinical grounds as suffering from pulmonary tuberculosis, or were under observation for suspected pulmonary tuberculosis. Of these 70 showed tubercle bacilli in the sputum at one time or another—a percentage of 38·6, while 85 showed tubercle bacilli in the fæces—a percentage of 40·9.

No case which clinically showed no sign of pulmonary tuberculosis gave a positive result on examination of the fæces.

The differential diagnosis between non-tuberculous fibrosis of the lung and pulmonary tuberculosis in children is often one of considerable difficulty. In this series 37 cases were diagnosed on admission as fibrosis of the lung, but six of these on examination showed T.B. in the fæces, thus helping considerably in settling the diagnosis and treatment. It would appear therefore that the main use of the method in future will be in helping to establish the diagnosis in cases of suspected pulmonary tuberculosis and in differential diagnosis. The diagnosis of tuberculous ulceration of the intestine by this method would not appear to be reliable.

### *Value in Prognosis.*

It has been shown above that in a proportion of cases the sputum at one time had contained tubercle bacilli, but at the time of examination did not do so, and yet tubercle bacilli were demonstrated in the fæces at periods extending to 11 months after the last T.B. sputum had been obtained. In such cases the symptoms, physical signs, and progress of the patients were such as to suggest that the lung disease was quiescent. These findings tend to show that an expression of opinion as to quiescence of the disease as judged by symptoms, physical examination, and absence of sputum should be given only with extreme caution. Examination of the fæces should be included in the factors to be considered in giving an opinion as to the advisability of further treatment and prognosis. If no tubercle bacilli can be found in the sputum the prognosis in children is better than if they are present. But the subjoined table of after-history results shows how nearly the course of cases with T.B. in the fæces tallies with those in whom T.B. are present in the sputum. The results in the two classes run parallel, and thus demonstrate that if no sputum is obtainable it is necessary to examine the fæces in order to be able to form a just opinion as to the prognosis.

| Cases. | Dead. | Worse. | Stationary. | Improving. | Quiescent. |
|---|---|---|---|---|---|
| 27 with T.B. in fæces but no sputum. | 2<br>(7 4 %) | 10<br>(37 %) | 5<br>(18·6 %) | 8<br>(29·6 %) | 2<br>(7·4 %) |
| 50 with T.B. in sputum and fæces. | 4<br>(8 %) | 18<br>(36 %) | 9<br>(18 %) | 16<br>(32 %) | 3<br>(6 %) |

### *Summary.*

On review of the evidence submitted it would appear: 1. That non-pathogenic acid-fast and alcohol-fast bacilli are not found in human fæces, and that tubercle bacilli are not found in the fæces of healthy individuals. 2. Tubercle bacilli, if present in the sputum, can be demonstrated in the fæces in 100 per cent. of cases. 3. In no case in which the sputum on repeated examination was negative for tubercle bacilli were these bacilli found in the fæces. 4. In children suffering from pulmonary tuberculosis tubercle bacilli can frequently be found in the fæces when no sputum can be obtained for examination. 5. The presence of tubercle bacilli in the fæces is not necessarily evidence of an intestinal lesion. 6. In children, who so frequently swallow their sputum, the examination of the fæces for T.B. can be more generally applied than the sputum examination, and yields a higher percentage of positive results. 7. It is in consequence of definite value in diagnosis and prognosis.

The writer feels that a method which, though very little more intricate than the routine one for examination of sputum for T.B., increases the certainty of diagnosis by at least 9 per cent. is worthy of an extended trial, especially with regard to children.

### *References.*

1. Inman, A. C.: Specific Diagnosis of Pulmonary Tuberculosis, THE LANCET, 1910, ii., 1747.
2. Emerson, C. P.: Clinical Diagnosis, 1913, p. 439.
3. Chandler, F. G., and Stobo, R. J. H.: Clinical Value of Examination of Fæces for Tubercle Bacilli, Tubercle, Sept., 1924, p. 592.
4. Lange, L., and Nitsche, P.: Deutsche Med. Woch., 1909, xxxv., 435.
5. Fried, B. M.: Occurrence of Tubercle Bacilli in Fæces of Tuberculous Patients, Boston Med. and Surg. Jour., 1923, clxxxviii., 735.
6. Alexander, D. M.: Journal of Hygiene, 1910, x., 37.
7. Rittel-Wilenko, F.: Wiener Klin. Woch., 1911, xxiv., 537.
8. Williams, T., and Kidd, P.: Brompton Hospital Reports, 1889.
9. Philip, R. W., and Porter, A. E.: Brit. Med. Jour., 1910, ii., 185.

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# THE TREATMENT OF RECENT "POTT'S FRACTURE."

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FOR the purposes of this article I am including under the title of "Pott's fracture" any fracture in the neighbourhood of the ankle-joint, where there is either backward or outward displacement of the foot, or both together. This is a subject to which much thought has been given, on which much labour has been spent, and about which, to judge by the literature, opinions differ materially. Unfortunately, the results of treatment in the past have, on the whole, been unsatisfactory. The method to be described is simple. In my hands it has been uniformly successful.

### *Diagnosis.*

As in many of the patients the region of the ankle is greatly swollen, recourse should be had to X rays as soon as possible to confirm the clinical findings. Should the displacement be obvious, no time must be wasted if a skiagram cannot be obtained immediately. The earlier the nature of the injury is accurately diagnosed and treated the better; reduction is easy when the soft parts are not fixed by adhesions; any pressure of bone ends on skin, blood-vessels, or nerves is relieved; the muscles have not contracted down and shortened the limb, nor has the blood and lymph exudate become organised. Other things being equal, the earlier the fragments are replaced the sooner will the patient be fit to resume his normal mode of life. Radiograms should be taken from at least two aspects, antero-posteriorly and laterally; occasionally a stereoscopic view may be valuable.

### *The Anæsthetic.*

To my mind spinal analgesia is the ideal method of rendering the manipulations painless; at the same time it produces absolute relaxation of the muscles; however, those who do not care to employ it will secure satisfactory results, in the majority of cases, with any form of general anæsthesia. Occasionally, indeed, an anæsthetic is not required; merely putting the leg up in the manner to be described will suffice. Inhalation anæsthesia has several disadvantages; the struggling which often occurs during the process of induction may increase the displacement and a simple fracture may be converted into a compound one. The anæsthetic has to be pushed to produce the same degree of relaxation as is obtained with a small dose of stovaine intrathecally. During the period of recovery a good result may be nullified by the movements of the patient. I find the only contra-indications to the use of spinal analgesia in the treatment of lower limb fractures are extreme youth, certain nervous disorders, and the desire of the patient to be "put to sleep." In the case of an adult, 30 minims of nepenthe by mouth 20 minutes before the operation helps to allay any anxiety that may be felt by a nervous subject. The solution used is 5 per cent. stovaine with glucose; 1 c.cm. of this contains 6 cg. of stovaine, an ordinary dose; however, ½ c.cm. gives adequate relaxation for manipulations around the ankle. Owing to the small amount used, the injection should be made just to that side of the mid-line corresponding to the side of the fracture. When the needle has been withdrawn, the patient is either left lying on the injured side for three minutes, or, if he has been sitting up, he is laid on his back with a sandbag under the buttock of the sound limb. This serves to localise the effect of the stovaine.

### *The Manipulations.*

About ten minutes after the injection the limb is thoroughly cleaned; the parts to be grasped by the surgeon are well powdered. Stockinet, sufficient to cover the foot and the lower three-quarters of the leg, is passed over the foot so as to leave the ankle exposed. A few vertical strips of adhesive strapping attach the upper end of the stockinet to the leg. The strapping must not cross the tibial crest owing to the risk of cutting through the skin here. The surgeon stands to the inner side of the affected limb. Where the injury is on the left side, he grasps with his left hand the inner surface of the leg immediately above the fracture. He takes the heel in the palm of his right hand, the fingers of this hand extending around the outer border of the foot on to the dorsum. The reduction is effected by pushing the leg downwards and outwards with the left hand, and pulling the foot upwards and inwards with the right. Occasionally traction is required, but usually the reduction is carried out by the one movement described. Should there be difficulty in overcoming the backward displacement, the patient is brought down the bed so that the foot projects beyond the end. A loop of towelling is then placed over the lower part of the leg. The heel is supported by both hands. The surgeon places his foot in the loop. By pressing downwards with his foot and at the same time lifting upwards with his hands, the backward displacement is corrected. The fewer the movements made to get the alignment, the less will be the damage to the soft parts, and the sooner the return to normal. The stockinet is pulled down over the foot and fixed to the upper bar of the cradle in such a way as to produce the maximum degree of dorsiflexion at the ankle. The leg is bandaged from below upwards over the stockinet and strapping. The ankle is palpated through the stockinet to make sure the desired position is maintained. If there is a blister or a wound the stockinet is cut away over it to permit the application of dressings. A loop of bandage is passed around the ankle and fixed to the outer and lowest bar of the Salter's cradle; another bandage is looped around the foot at the level of the metatarsal heads and tied to the upmost bar on the inner side. These bandages are prevented from slipping by fixing them with adhesive strapping. This arrangement helps to maintain the inversion of the foot. The weight of the leg prevents the backward displacement from recurring. The cradle is firmly fixed to the bed by bandages. For those patients with epilepsy or delirium tremens, it is advisable to apply a light removable plaster-of-Paris case around the stockinet; the limb is left suspended as usual. In very restless patients the limb may be absolutely immobilised by fixing it to the sides of the cradle with several loops of plaster-of-Paris bandage. The ankle may now be screened, and any readjustment made before the effects of the stovaine have worn off. I have rarely found this necessary; two skiagrams are taken later at a convenient time to record the fact that the correct alignment has been obtained.

### *After-treatment.*

The bandage around the leg is removed daily, and effleurage carried out through the stockinet, thereby encouraging early absorption of the effusion. All parts of the limb can satisfactorily be massaged without the risk of the masseur displacing the fragments. The other bandages are adjusted as they become loose. As soon as the major portion of the swelling has subsided, I adopt one of two methods of ambulatory treatment. My customary practice was to enclose the foot and leg in a light removable plaster case. The patient was then allowed to get about with the aid of crutches. The alternative method, which I at present am trying out, is to apply a plaster of the Delbet type (well described in "Minor Surgery and Bandaging" by Gwynne Williams) and permit the patient to walk on the foot at once. Personally I think the former method, except in perhaps the hands of "Delbet" enthusiasts, will give more general satisfaction. At the end of three weeks, or a little longer if the fracture has been a bad one, the patient gradually puts his weight on the plaster. As progress is made, so are the crutches replaced by sticks, and the sticks used less and less. From five to eight weeks from the date of fracture he is fitted with a boot, the inner edge of which is raised from a quarter to half an inch. The upper of the boot may with advantage be strengthened on the inner side so that, when laced, it prevents any tendency to inward displacement.

### *Results.*

I have now treated more than 30 successive cases with outward and backward displacement of the foot by this method, with uniformly good results. In only one has a fracture set in this way required any further manipulation. This patient, a man of 71 years, suffering also from delirium tremens, was so restless that his limb had to be reset and secured in a plaster case.

The advantages claimed for this method of treatment are: (1) The patient does not lose consciousness. (2) A minimum dose of stovaine is used. (3) There is no risk of pressure sores. (4) Absence of discomfort after the stockinet has been applied. (5) Very small chance of recurrence of displacement once reduction has been effected. (6) Greater freedom of movement at the ankle-joint. (7) Ability to walk earlier.

I have to thank Dr. W. G. Bendle, medical superintendent of the Paddington Infirmary, for permission to treat these cases and to publish the results.

PS.—Since writing the above article I have read the report in THE LANCET (Jan. 2nd and 9th, 1926) of the discussion in Manchester under the auspices of the British Orthopædic Association, on the treatment of this type of fracture. More than ever do I feel that the stockinet method, being so simple, and, with me, so satisfactory, should be given an extended trial. As a comment on the discussion, may I say that I feel sure it is a mistake to immobilise these fractures for any length of time; in fact, since using the modified Delbet method, I am certain that the sooner the patient can be made to walk on the injured limb, the sooner will he recover. The great disadvantages of immobilisation of the leg are that the muscles become atrophied even with daily massage, the patient imagines his injury is worse than it really is, loses confidence in his ability to walk, and has to be re-educated in the lost art. It was while attempting to maintain the fragments in position in a difficult backward displacement of the foot that the above method was evolved; however, some of the results quoted in the discussion must have been due, in my opinion, to the fact that inexperienced residents were treating the cases. The mismanagement of this type of fracture provides a strong argument in favour of Sir Robert Jones's plea for a special fracture service attached to each large hospital.

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ROCKEFELLER FOUNDATION GIFT TO NORWAY.—The Foundation has offered the Norwegian Government a sum not exceeding 1,065,000 kroner for the completion of the work on the projected new Government institute for serum and vaccine research. The offer has been thankfully accepted

# A CASE OF HERNIA OF THE STOMACH AND TRANSVERSE COLON THROUGH THE DIAPHRAGM.

By E. CHITTENDEN BRIDGES, M.D. Durh.,
AND
J. FAWCETT, M.D., F.R.C.P. Lond.

*With a Note on the X Ray Examination by* Mr. Lindsay Locke *and a Note on the Operation by* Mr. T. P. Dunhill.

The condition about to be described is one of considerable rarity and interest and is therefore worthy of record.

Mrs. E. D., aged 60, began to have pain in the front of the chest accompanied by flatulence and a feeling of oppression when she was about 40 years old. For the last seven years she had suffered from sudden and severe attacks of abdominal pain of obscure origin. The pain was situated mainly in the left hypochondriac region radiating over the lower costal margin towards the mid-line. It lasted generally for about six or seven hours and terminated by an attack of vomiting. For the past two or three years the patient had not been free from severe attacks for a longer interval than six weeks, and between these she had suffered from slighter seizures. The attacks were quite irregular in onset, occurring at any time of day or night, but in the intervals there was no pain. In 1921 hæmatemesis first occurred, and again in 1922. On May 10th, 1924, a very severe attack of pain took place accompanied by frequent vomiting which lasted for 48 hours; after the first 12 hours the vomit contained clots of blood and subsequently "coffee grounds."

The patient stated that she had been constipated all her life. From the age of 9 to 20 years she had been subject to attacks of headache and vomiting; but otherwise there was nothing in her past medical history which had any obvious bearing on her condition.

On *physical examination* no gross lesion was discovered. The only abnormal physical signs were that over the left side of the chest behind and below the angle of the scapula there was impairment of resonance on percussion and the respiratory murmur was deficient.

The sudden and severe paroxysms of abdominal pain and vomiting, accompanied on three occasions by hæmatemesis, were quite unlike those due to the usual causes of pain in the region referred to. The attacks at once suggested to our minds the likelihood of a temporary strangulation—a kink of some part of the stomach or upper portion of the small intestine in, for example, a retroperitoneal pouch. In view of the increasing severity and frequency of the attacks it was decided that an exploratory operation was necessary, but before proceeding further it was decided to advise the patient to have an X ray examination of the stomach and alimentary canal, after administration of a barium meal, with the object of more accurately establishing the diagnosis.

### *Note by* Mr. Lindsay Locke.

"The abnormal conditions found at the X ray examination were:—

"The displacement of the heart to the right. This appeared to be due to something causing a shadow which encroached on the base of the left lung. The fact that the upper domed limit of this shadow moved on respiration synchronously with the right diaphragm would indicate that it was not inflammatory—e.g., due to pleurisy—and also that the left diaphragm was still able to contract.

"The stomach was practically inverted in position, and what should have been the lowest part of the greater curvature in its normal position now came to lie on a level with the third rib and formed the highest part of the dome. The pyloric end of the stomach overlay the cardiac orifice. The line of the left diaphragm was not visible. The transverse colon was looped up to the highest point of the stomach and its afferent and efferent limbs lay close together, suggesting that they were passing through a hole.

"The differential X ray diagnosis lay between hernia of part of the stomach and colon through the diaphragm and an ulcer causing distortion by cicatricial contractions, but this latter condition did not explain the high position of the stomach, so we were left with diaphragmatic hernia as the only explanation."

### *Note by* Mr. T. P. Dunhill.

"When the patient was first seen by me the X ray examination had already been made and it was known that the position of the stomach and part of the transverse colon was not normal. It is probable, in the light of the patient's history, the operation findings, and Mr. J. B. Hume's researches, that this malposition was congenital—indigestion had been present for 20 years—but in recent years the discomfort had become very troublesome, and attacks of pain and vomiting had occurred with increasing frequency and severity. There had been considerable loss of weight. The onset of hæmatemesis added another important sign; this might have been due to ulceration—innocent or malignant—but was more likely to be due to partial strangulation—kinking of the stomach across the edge of the diaphragmatic opening—the pressure being first manifested on the soft-walled veins. The symptoms, the signs, and the X ray evidence were such as to make exploration imperative. The operation was planned so that a thoracic and an abdominal incision could be joined if found necessary or advisable, the abdominal incision to be made first for purposes of exploration, so that the time that the thoracic cavity would need to be kept open should be reduced to the minimum.

"*Operation.*—On July 22nd, 1924, under intratracheal gas and oxygen with a little ether (Dr. I. W. Magill), Dr. Chittenden Bridges and Mr. Geoffrey Keynes assisting, the abdomen was opened by a left paramedian incision. On lifting the edges of the incision neither stomach, great omentum, nor left lobe of the liver could be seen. A loop of transverse colon was seen disappearing through the left dome of the diaphragm. This loop, together with the great omentum, could be withdrawn by gentle traction without difficulty from the aperture in the diaphragm. Further traction brought into view the greater curvature and then the whole stomach. There were no adhesions. A hand as far as the wrist could be passed through the opening into the thorax, and the heart, surrounded by its pericardium, palpated. With this hand in the thoracic cavity it was easy, by bimanual palpation, to decide on the right rib to remove at the later stage. The stomach readily slipped back into the thoracic cavity, which had evidently become its home. It was obvious that the left lobe of the liver was rudimentary. The investigation being completed, the abdomen was temporarily closed by three through-and-through sutures, in order to protect it, while the thorax was being opened. An incision about 8 in. long was made over the eighth rib—a dependent breast having to be well drawn up—about 7 in. or 8 in. of this rib removed, and the thorax opened. By means of a rib-spreader excellent access was obtained. The dome of the hernial sac covered with pleura was seen and the pleura incised. It stripped off easily from the peritoneum which constituted the sac. This was then incised and its glistening inner surface found to be continuous with the peritoneal cavity.

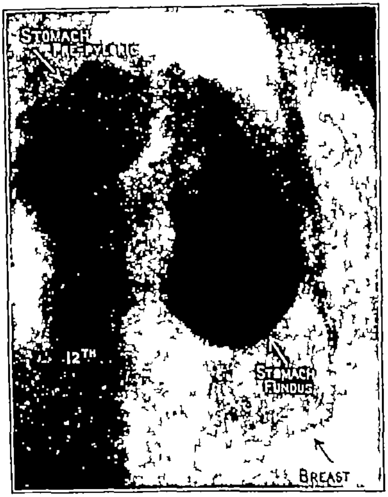
"The left margin of the defect in the diaphragm was well felt and seen. On the right side the margin was not felt and seemed to be lost in the diaphragmatic aspect of the pericardium. The three sutures which had temporarily closed the abdominal incision were removed and the stomach gradually drawn down again into the abdomen by my assistant. It appeared from this aspect that the cardia was just above the level of the diaphragm, as though the condition were congenital and the œsophagus rather shortened. As there was not a good free right margin to the defect the left margin was sutured to the base of the pericardium and to the tissues surrounding the œsophag this being done from the thoracic aspect. In this way defect was well closed, but at a rather higher level t normal. It did not make a normal diaphragm, but it m a barrier against the entry of the abdominal viscera i the thorax. The chest wall was then carefully sutured.

"From the abdominal incision three catgut sutures w passed through the sero-muscular coats of the anter surface of the stomach, and two others through the me colon at a point which corresponded to the apex of the lo of colon which had become accustomed to dwell in the thora Each of these sutures was passed through the pariet peritoneum at the appropriate spot and tied, thus giving t stomach and colon sufficient anchorage to maintain the organs in their new position until the repaired diaphrag became organised. The abdominal incision was then close in the usual manner."

### *Discussion.*

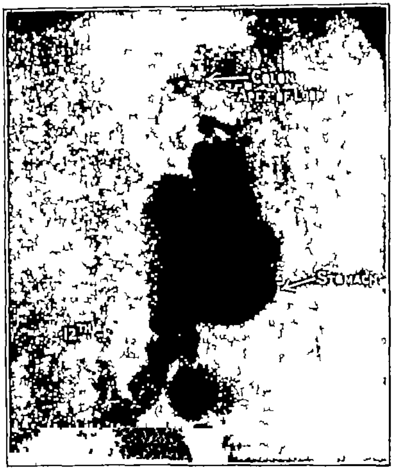
As confirmed by operation the case proved to b one of considerable rarity, due to a congenital defec

Fig 1



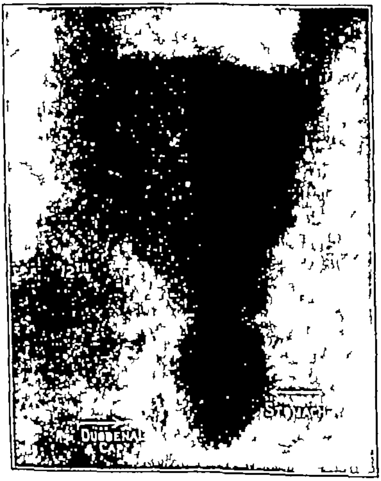
Before operation The pyloric end of the stomach reaches the third costal cartilage.

Fig 2



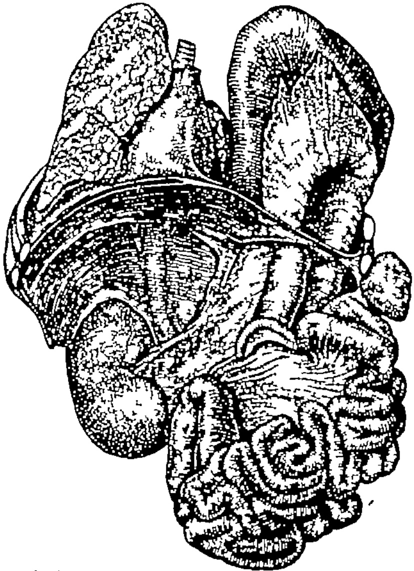
Before operation Loop of colon high in the hernial sac.

Fig 3



Three months after operation Axis of stomach lies normally

Fig 4



Hernia through the left dome of the diaphragm The liver has been removed. (After J B Hume, *Brit. Jour of Surg* October 1922.)

of the diaphragm, the hernia, as in most cases, entering the left pleural cavity, and consisting of the stomach and a portion of the colon; this subject has been well discussed by Mr. J. B. Hume.[1] The physical signs over the lower part of the left side of the thorax posteriorly, which were detected in a quiescent period after an acute attack, were no doubt the result of the defect in the diaphragm, which interfered with the normal respiratory movement of that side of the chest. Usually the thoracic signs are almost identical with those of pneumothorax in the lower part of the chest giving rise to a tympanitic note on percussion, fixation of the chest wall, displacement of the heart, with absent respiratory murmur and voice sounds. It would have been of interest to know if like signs existed during an acute attack; but even if they had been present the prominent abdominal symptoms of severe colic and vomiting would have made it clear that the thoracic signs were of secondary importance.

*X Ray Examination Three Months Later.*—This showed the left diaphragm to be extremely high, but the stomach is shown with its fundus and pylorus in the right relationship. Barium passed into the colon, and this organ did not enter into the thoracic cavity.

*Eighteen Months after Operation.*—The patient has increased in weight by 2 st. She has lost all symptoms of dyspepsia and expresses herself as never having been so well before.

# A NEW METHOD OF PHYSICAL EXAMINATION (ECTOSCOPY).

By DR. EDUARD WEISZ,
PISTYAN, CZECHO-SLOVAKIA.

WITH the aid of ectoscopy a diagnosis of the following conditions becomes possible.

1. The lower limit of a pleural effusion can usually be easily ascertained, though this has not hitherto been demonstrable, even by radiography.
2. Even low down posteriorly one may be able by this method to localise small effusions in the pleural space, where hitherto it has been impossible to find them, and to verify them by exploratory puncture.
3. By means of ectoscopy it is possible to localise small encysted quantities of fluid or pus from burrowing abscesses in the tissues when this is impossible by other methods, so that the first puncture with a needle reaches the fluid.
4. In the domain of gastric and intestinal disorders it is often possible to differentiate between functional and organic disorders.
5. Any trace of peritoneal irritation can immediately be demonstrated by ectoscopy, its origin localised, and its progress to peritonitis or, in a favourable case, its retrogression, may be followed ectoscopically with the naked eye.
6. In gynæcology acute inflammatory affections of the appendages can usually be recognised at the first glance and differentiated from all other pelvic conditions. In a case of ectopic gestation the progress and position of the rupture may be recognised with the naked eye.
7. The ectoscopic method can also be used in neurology, as, for example, in the diagnosis of the obscure origin of masked or abortive hemiplegic affections—sometimes many years after a hemiplegia has healed evidence of the occurrence may thus still be forthcoming.

All these observations may be made with the naked eye without touching the patient.

Of all the various ectoscopic phenomena to be observed on the thorax, abdomen, and back by applying the appropriate technique, only the "speech phenomenon" will be described here, as this has been worked out most fully and appears to be the most important. Just as the face shows the movements of expression so also may various speech movements be observed on the trunk; the "thoracic or intercostal speech phenomenon," the "abdominal speech phenomenon," and the "lumbar speech phenomenon." Technically it is important to note that the speech movements (speech phenomena) can only be well seen at the beginning of phonation. The patient should, therefore, be instructed only to enunciate single words or syllables very slowly—e.g., counting up to ten in the intervals. Up to a point an increased effort in the enunciation increases the speech phenomenon, but if the effort is excessive, optimum results are not obtained. As the speech phenomena are readily altered by alterations in the attitude and position of the patient it is important, when comparing the left side of the body with the right, to ascertain that the essential symmetry of the body is maintained by a correct attitude.

### *Principles of Ectoscopy.*

Of what, then, do these phenomena consist? In those parts of the thorax not covered by large masses of muscle or by the scapula—i.e., where the intercostal spaces are at least partly visible—the following may be observed. At the beginning of each effort of speech the intercostal furrows disappear and the intercostal wall not only rises to the level of the ribs but protrudes beyond. As the sound of the word of one syllable dies away again this intercostal protrusion also subsides to its original level. If one, then, after an interval instructs the patient to speak again, one can obtain a repetition of the intercostal protrusion as often as desired.

The intercostal speech phenomenon—i.e., the phonetic protrusion of the intercostal spaces—is due to the more or less complete closure of the glottis during phonation; as a result the air squeezed upwards by abdominal contraction cannot escape sufficiently rapidly by this route, so that, analogous to an explosion on a small scale, the excessive expiratory pressure forces the lung into the intercostal spaces and forces them outwards. The intercostal speech phenomenon can be best seen in the second and third intercostal spaces in the parasternal line, laterally in the lower axillary region, and posteriorly on the lower part of the thorax as far as the scapula line. In most patients the intercostal speech phenomenon is most obvious at the borders of the lungs. This is due to the fact that the intercostal protrusion produced by speech can only be effected by the outward pressure of the lung, and not by the more solid organs of the spleen and liver which lie below the diaphragm and are, on account of their firmer consistency, not sufficiently pliable to be readily forced into the intercostal space so as to cause them to protrude.

### *Diagnostic Value of Ectoscopy.*

Thus the speech phenomenon separates the solid organs of the liver and spleen from the lung, and is therefore useful in defining the level of the patient's diaphragm. How, then, does an effusion in the pleural space modify the speech phenomenon in the intercostal spaces? As the intercostal protrusion during speech seems to be a phenomenon depending on the compression of air, it might be supposed that the fluid of an effusion would, by its very nature, be unable similarly to follow all the speech movements of the thorax. In effect, however, a pleural exudate also shows the speech phenomena well; the impulses and movements are readily transmitted to a fluid pleural effusion, and the waves thus produced become visible in the intercostal spaces which are protruded by the impact of these waves just as they are by the "phonetically" compressed air in the lungs. As, however, as already mentioned, the liver and spleen cannot take part in these "phonetic" protrusions, the lower limit of an effusion may readily be separated ectoscopically from the upper margin of the spleen and liver, which has not been possible by the methods of physical examination hitherto available.

Thus the area mapped out by the radiographic shadow and by dullness on percussion is divided into two separate parts by the speech phenomenon. In the upper part the intercostal spaces move during speech as they do over the lung; this, therefore, corresponds to the fluid effusion, while the lower remains stationary during speech and therefore contains liver and spleen. If a line be drawn across the area of dullness between that portion which moves during speech and that which does not, a needle will draw fluid at any point above the line, but puncture below will give a negative result. By this means it is possible to isolate small quantities of fluid posteriorly from a large area of dullness on percussion.

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[1] Hume, J. B.: Brit. Jour. Surg., vol. x., No. 38.

A very important and extraordinarily interesting *field for the application of the ectoscopic method* is in the diagnosis of encysted fluid or a hidden abscess situated in the middle of a mass of dense tissue, the fluid nature of whose contents can be demonstrated neither by X rays nor by percussion. The following case is an example:—

A few years ago a young woman consulted me with a history that she had been to numerous doctors, had been X rayed several times at two different clinics, that an exploratory needle had on several occasions been inserted below the shoulder-blade, but no diagnosis had been reached. On examination an area of dullness barely the size of a child's hand was found between the scapular and paravertebral lines. Though I had not much experience in such matters, *I did think of the possibility of an encysted effusion.* I instructed the patient to repeat the word "kitt" at slow intervals, but the area of dullness remained unaffected; it did not move. Apparently it consisted of solid tissue, a tumour, an indurated mass of some sort. At length I noticed that in the centre of the quiescent area a small spot less than a finger-nail in diameter moved a barely visible amount during speech. If anywhere, therefore, a needle should draw fluid at this point. Superficial puncture produced no result, but a second puncture at the same spot resulted in several drops of pus, and a subsequent puncture with a longer and stronger needle produced *half a syringeful of pus.* At this point a surgeon was called into consultation at the clinic, and *spondylitis (? spinal caries)* with burrowing abscess diagnosed. The treatment consisted of a plaster jacket and subsequently a surgical corset.

In the *pathology of the abdomen and pelvis* the abdominal and lumbar speech phenomena show as follows. *If one watches the back or abdomen* of a person speaking one sees all sorts of movements, partly active and partly passive, in the abdominal and lumbar body wall with each effort of speech. If there is any painful or acutely inflammatory process present within the abdomen, especially one associated with traces of peritoneal irritation, the speech movements are found to be entirely absent as compared with the other unaffected areas. The rest of the abdomen speaks, the affected (diseased) area is silent. *Automatic* reflexes here ensure that, during speech, the areas which are diseased and particularly sensitive to mechanical pressure and strain shall not be affected by the *speech movements. The diseased* abdominal organs must be kept at rest at all costs, and reflex muscular inhibitions during speech help to effect this. One is reminded of the absence of movement of the "muscles on guard" in cases of appendicular irritability, in which the reflex muscular inhibitions of the abdominal wall are able to protect the focus of disease from all mechanical irritation. As a counterpart to this *défense externe* the speech block may be described as a *défense interne phonatorique.* In comparison with the former the latter is far more sensitive and extraordinarily delicate.

To cite only a few illustrative examples from my collection of cases:—

Perforation of a gastric carcinoma seen a few hours after rupture. The left upper quadrant of the abdomen does not move during speech. The perforation is therefore probably situated here. *Tuberculous peritonitis:* A quarter of the abdomen is at rest, three-quarters move with speech. *Apparently, therefore,* three-quarters of the abdomen are unaffected. *Fistulous abdominal tuberculosis:* Three quadrants of the abdomen are silent, only one quadrant speaks. *Gastric ulcer:* The left half of the gastric area is at rest. *Duodenal ulcer:* The right portion is silent. *Cholecystitis:* Right upper portion of the abdomen is "phonetically" inhibited.

An incipient cholecystitis is also associated with an absence of speech movements in the right upper portion of the abdomen, which spreads with the progress of the disease, and is again replaced by normal speech movements as the disease disappears. The gynæcologist has the advantage that he can palpate a diseased area fairly thoroughly before opening the abdomen, and can thus verify the ectoscopic findings as it were by an "autopsy in vivo." My own limited experience in this field has been extensively confirmed by Weinzierl at Prof. Wagner's Clinic in Prague in his work covering some hundreds of cases. In every acute inflammation of the uterine appendages a corresponding inhibition or absence of the speech movements over the diseased focus is found. In all other *pelvic lesions the speech movements remain normal.* Thus it is possible to follow ectoscopically the development of an (abdominal) peritonitis from a pelvic peritonitis, and the progress from a partial to a general involvement of the peritoneum.

### *Applications of Ectoscopy to Neurology.*

*Next we will deal briefly with the applications of* ectoscopy to neurology. Since speech movements and reflexes are connected there must also be some *connexion between speech movements and the diseases* of the nervous system. This connexion is most obvious in the unilateral affection of a typical hemiplegia. If we watch the speech movements of the abdomen and back in one of these patients with unilateral paralysis we find—as is to be expected—that during phonation the unaffected half of the back and abdomen moves normally—i.e., the sound half speaks, while the paralysed half does not move; it remains silent. By this sensitive method one may the more readily prove the presence of a mild hemiplegic attack which *has run its course rapidly and unnoticed.* Similarly, one may demonstrate after many years by ectoscopic *differences in the abdomen during speech* the presence of an old hemiplegia which has apparently been completely cured. Naturally, the method fails occasionally and these failures have to be explained and elucidated; as exceptions they help to prove the rule.[1]

### *Technique.*

Finally we will give a short description of the technique. On the abdomen and back the speech phenomena are generally so coarse as to be obvious to the observer without any further preparation. The position and posture of the patient have some *effect. For example,* when the patient is erect certain portions of the abdominal and dorsal musculature assume their normal tone, so that the movements of the abdominal wall usually appear less vigorous than *when, as in the horizontal posture,* the muscles are relaxed. It is therefore advisable, if possible, to examine the patient erect as well as recumbent.

*As it is hardly possible without prolonged practice* to observe the speech movements of the whole abdomen or back at once, so precisely as to obtain a mental impression of all the fine movements of each portion, it is advisable to examine the back or abdomen in small segments, one at a time, while the remainder of the back and abdomen is covered. The abdomen should preferably be *divided into four* quadrants by an imaginary cross having its centre at the umbilicus. According as to whether the upper *right and left portions* of the abdomen or the lower *right and left portions* are to be compared, the lower or upper half of the abdomen is covered with a towel. If the upper and lower *quadrants* of the same side are to be compared, the opposite half of the abdomen is covered. Similarly, the back may be divided up and covered.

Conditions in the thorax are not nearly so simple as in the abdomen. If the intercostal speech movements are to be examined one must proceed as follows. First of all, by placing the arms horizontally ("crucifixion attitude") the upper anterior intercostal spaces become more readily visible, and in them the *speech movements.* A useful position for examining the back is the "self-embracing" attitude. The fingers of the patient reach as far back as possible on the lateral thoracic wall. By this means the scapulæ, especially their lower portions, are displaced laterally as far as possible, and the medial borders of the scapulæ *take up an oblique attitude* instead of the normal vertical position. The inferior angle of the scapula is thus displaced several centimetres outwards and a larger area of the intercostal spaces *on the posterior* thoracic wall becomes accessible for observation of the speech movements. In order to examine the important lower axillary portion of the thorax it is best to instruct the patient to place his hand on his head, so that the whole lateral view may be unobstructed. In thin individuals no further manœuvres are generally required. If in the more obese there are no very obvious deep intercostal furrows various positions (stretching out, diagonal, &c.) should be tried in order to improve them. For example, when the back is examined, the patient should bend over forwards; when one side is examined, he should lean over to the opposite side. Sometimes a diagonal or oblique position between the two may be chosen. Excessive use of these positions is, however, not to be recommended, as the intercostal furrows thereby become too tense and the speech movements may be diminished rather than increased. In the excessively stout, in whom the adipose subcutaneous tissue hangs in massive folds, ectoscopy will generally have to be abandoned. But even here it is sometimes possible with the aid of both hands to draw thick folds of skin, as also the breasts of women, away from the field of observation and at least obtain a view of traces of the furrows which may possibly show traces of movements.

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[1] Further particulars appear in my book Diagnostik mit freiem Auge (Naked Eye Diagnosis), published by Urban and Schwarzenberg, Vienna and Berlin.

The word "kitt" has been found the most useful of the various types of syllables suitable for ectoscopy. The patient should be instructed to repeat this slowly at intervals of five to ten seconds.

# MEDICINAL INDUCTION OF LABOUR: ITS CLINICAL ASPECT.

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SINCE the publication of A. C. Williamson's[1] paper on Induction of Labour by the Use of Castor Oil and Quinine, much interest has been taken by the staff of St. Mary's Hospitals in this particular treatment. During the last few years labour has been induced in a large number of cases by this method, or a slight modification of it. In consequence, the efficiency of quinine and castor oil combined in stimulating the uterus to contract has been well demonstrated, and the specific action of these drugs on the uterine muscle, which is discussed by Williamson, has been recognised.

The object of this paper, based on the observation of 78 cases, is an attempt to assign to this treatment its correct place in obstetrics. From its comparative harmlessness the method may be legitimately employed in almost any case where an early onset of labour is desired. There are, however, definite types of case in which its employment is specifically called for. It is the clinical aspect of this special treatment, therefore, with which I wish to deal, and the 78 cases dealt with in this paper were chosen from this point of view.

The drugs are administered in the following way. A dose of two ounces of castor oil is given, and one hour later half an ounce of a mixture containing quin. sulph., gr. x.; acid. sulph. dil., ♏x.; glycerine, ♏xx.; sp. chlor., ♏v., and water to the half-ounce. One hour after this a simple enema is administered. This is followed after two hours by another dose of the mixture, also three hours later and again after four hours. In the cases of this series, which were also treated with pituitrin, this was administered in ½ c.cm. doses half-hourly, and continued until 3 c.cm. had been given, the initial dose being used five hours after the last dose of quinine.

This method more nearly approximates to that described by Watson; 40 gr. of quinine are used in the course of treatment. If the patient complains of nausea or ringing in the ears the treatment is discontinued.

### *Indications.*

Cases are often met with in the late months of pregnancy in which an immediate or early commencement of labour would be beneficial to the patient. In a large percentage of these, however, active interference to induce labour may be deemed unwise, both from the point of view of the risks involved and also on account of the uncertainty of the type of the resulting labour. The cases in which delivery by Cæsarean section may possibly be necessary, but in which a trial of labour would furnish valuable information, are those to which I now specially refer. The risk of sepsis after Cæsarean section is increased by examination or interference per vaginam beforehand, and so attempts to induce labour by mechanical means greatly add to the gravity of the prognosis should delivery by Cæsarean section to procure a living child become eventually necessary.

The chief and definite indication, then, for the induction of labour by medicinal means is in cases presenting uncertainty as to the progress of labour and in which induction by mechanical means is contra-indicated owing to the possible necessity of delivery by Cæsarean section. From this point of view induction may be necessary in either (*a*) primigravidæ or (*b*) multiparæ.

(*a*) Under this category comes the primigravida, who exhibits some degree of minor pelvic contraction (diagonal conjugate 4 inches). The presentation and position of the child being normal, the fœtal head may, at the time of observation, be: (1) Mobile at the pelvic brim—possibly due to causes other than the pelvic contraction; (2) fixed at the pelvic brim, but exhibiting some very slight degree of "overlapping"; (3) fixed but high, its greatest diameter being above the plane of the pelvic brim.

All points of this borderline type of case are taken into consideration, and it is adjudged that delivery per vias naturales is a sound possibility. Immediate induction of labour is deemed necessary to increase the possibility of obtaining a living child. The period of pregnancy may vary from eight months to post-maturity; 38 cases of my series belong to this class.

A good example is Mrs. H. B., a primigravida and two weeks post-mature. The fœtal head was mobile above the brim. The pelvis appeared normal. After the quinine and castor oil treatment labour commenced and the fœtal head passed through the brim. Interference was resorted to owing to the passage of meconium by the child in utero. On examination it was found that the umbilical cord was coiled twice round the child's neck. Delivery was effected by version, the forceps tending to slip when applied.

Another case was that of Mrs. L. F., a primigravida with a flattened pelvis. The diagonal conjugate was 4 inches. There was slight overlapping of the child's head above the brim, but I judged that it might be soft enough to pass through after moulding had taken place. Labour was induced and delivery terminated by the natural forces.

(*b*) The multipara, who is included under this category, may or may not exhibit pelvic contraction, but usually presents a history of previous difficult labours, either from this cause or from the size of the children. Free mobility of the fœtal head above the pelvic brim may be present, but, of course, has not the same significance as in a primigravida; 49 cases are varying examples of this type.

Mrs. M. T. had had one previous delivery by craniotomy at term. The pelvis was slightly contracted. The diagonal conjugate was 4½ inches. When seen, the patient was one week post-mature by dates, and the fœtal head was freely mobile above the brim, but as she was somewhat obese, it was not possible to gain much information by approximating the child's head to the brim manually. Labour was induced medicinally and its progress closely watched. Natural delivery was effected.

In another case, that of Mrs. E. W., there had been a previous difficult delivery by forceps, resulting in the birth of a dead child. Here, again, the pelvis was slightly contracted. The diagonal conjugate was 4½ inches. She was admitted when one week premature. The child's head was then freely mobile above the brim. Labour was immediately induced, and delivery of an 8¼ lb. child effected by the natural forces.

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[1] Williamson: Surg., Gyn., and Obst., 1922, vol. xxxiv.

In such cases one would hesitate to induce labour by mechanical means or to interfere per vaginam when the case presented such possibilities of difficult labour.

Apart from purely mechanical difficulties which may call for induction of labour by mechanical means, other types of case present themselves as eminently suited to this treatment; for example, cases of uterine inertia persisting beyond a reasonable time, especially if there is definite dilatation of the os, or the membranes have ruptured some hours previously. Four cases of my series are examples.

The third type of case, which is admirably suited to this treatment, is that comprising accidental hæmorrhage and marginal or lateral placenta prævia. In these cases medicinal induction of labour is attended with such success as largely to negative any mechanical method, which, besides, would greatly increase the risk of sepsis.

I have also been led to employ it in other types of cases in which the induction of labour might justifiably have been undertaken by mechanical means. In a number of these I have found that induction by bougies will almost invariably succeed at the first attempt if employed within 24 hours of the termination of the medicinal treatment. In these cases, therefore, I usually induce labour by bougies about 12 hours after the completion of the medicinal treatment if there are no signs of labour having commenced by then.

Cases of post-maturity react well to this treatment (25 cases). Induction of labour for severe albuminuria of pregnancy or threatened eclampsia is well carried out in this way (eight cases).

I therefore believe that although labour may fail to commence after this treatment alone, the specific action of the quinine on the uterine muscle is maintained to such a degree during the next 24 hours that added mechanical stimulation (by bougies) quickly brings about its regular contraction.

### *Effect on the Progress of Labour.*

Patients in labour differ so markedly, both physically and temperamentally, that it is difficult to ascertain how far a particular type of labour may be due to treatment and how far to the patient's own nervous control. A number of cases suggested a definite shortening of the first stage, but further results were so irregular as to negative a constant finding.

The most regular feature which labours, carried out under the influence of quinine, exhibit is the relative painlessness of the uterine contractions—a feature present in fully 70 per cent. of cases in greater or less degree. In some it is so marked as to approach a condition of painless uterine contraction, the uterus having often to be carefully watched in order to determine that labour is in progress. The mother in such cases believes that she is not yet in labour, and in this a danger lies, especially in that type of case which demands to be closely watched. In other ways the labour progresses along normal lines. It must be remembered, however, that the cases which receive this treatment hold prospective difficulties in the type of labour and are hence, of necessity, prolonged. The pulse and temperature show no variation from the normal type.

*Interference During Labour.*—There is nothing to indicate that delivery by the forceps has to be resorted to more often by the use of this method—rather the contrary. Considering the type of case under discussion, the number of forceps-deliveries—nine of the 78 cases—is comparatively small. These nine were effected by the low forceps operation.

### *The Additional Use of Pituitrin.*

Even if it fails to initiate uterine contractions, I believe that quinine, given as described, brings about a certain amount of tone or uniform contractility in the uterine muscle itself. Pituitrin, if given when the uterine muscle is in this condition—that is, immediately after the course of quinine—is not so liable to produce the irregular and spasmodic contraction which has been known to cause rupture of the lower uterine segment. The first 19 cases of this series were induced with the additional use of pituitrin and without any untoward occurrence. The percentage of successes by this means, however (68 4 per cent.), was not even so high as that obtained by the use of quinine and castor oil alone (72 7 per cent.), and I believe it to be unsound to employ pituitrin in the first stage of labour. The latter 55 cases of this series were conducted without its use.

Pituitrin may be of assistance with negligible danger in the induction of abortion, when this is inevitable, and the uterus does not exceed the size of a five months' pregnancy. Especially is it useful to complete an inevitable abortion at anything up to three and a half months, the uterus then being unable to accommodate the smaller hydrostatic bags. From this stage to five months abortion lends itself to induction by a hydrostatic bag with greater success immediately following a course of quinine and pituitrin, as do later labours to bougies immediately after the quinine course alone.

The danger, therefore, of the production of irregular and spasmodic uterine contractions by the administration of pituitrin is minimised by the quinine course immediately preceding it. It is this fact which, I believe, makes its use legitimate in the production of complete abortion at the dangerous stage up to three and a half months, or even up to five months, when conditions are not favourable to uterine rupture during labour In cases beyond this stage, however, pituitrin should never be used, as the production of anything but regular and uniform uterine contractions is both scientifically unsound and extremely dangerous, especially in the type of case which particularly lends itself to medicinal induction.

### *Conclusion.*

The chief point to which I would draw attention is that labour was successfully induced by purely medicinal means in 57 out of 78 cases, or 73 per cent. These are divided into a small group of the earlier cases in which pituitrin was also used, and a larger group of later cases in which quinine and castor oil were alone used. It is interesting to note that the percentage of successes in the later group is larger than in the earlier cases. It would appear that the additional use of pituitrin in no wise increases the possibility of success—a further contra-indication to its use.

This high percentage of successful inductions by medicinal means assigns to this method its place in obstetrics. This percentage of successful cases is higher than that reported by Williamson[1] (40 6 per cent.) and Muschallik[2] (58·6 per cent.), but not so high as Watson[3] claims with the additional use of pituitrin (90 per cent ). He, however, only obtained 20 0 per cent. of successes with the quinine and castor oil alone. But the number of my cases is far too small to attempt a comparison of statistics. It is chiefly made up of cases presenting possible difficulties with regard to the progress of labour, whether the pelvis be normal or otherwise. It is this clinical use of medicinal induction rather than the actual effects of the drugs themselves that I desire to emphasise. As far as the latter goes the work of Williamson and Watson places the matter beyond doubt.

Williamson states that the noteworthy points about his successful cases were: (1) the patient was due or past due by dates, (2) the head was fixed or beginning to engage; (3) the cervix was partially or completely obliterated and the minor os would admit a finger.

In the series here reported there were many successes with premature cases, and in others in which the fœtal head was mobile and the cervix closed and not drawn up. From a survey of these it would appear, therefore, that quinine is definitely able to act upon a closed cervix—a point which Williamson apparently considers doubtful.

In conclusion, therefore, I would wish to emphasise the fact that in cases where induction of labour is indicated but where methods involving interference per vaginam are contra-indicated, this treatment is definitely called for. Only in two of the series was Cæsarean section found necessary after labour induced by this means had been given a short trial, but without it how many would have been subjected to it, and in how many would the prognosis, after Cæsarean section, have become necessarily graver if mechanical attempts at induction of labour had previously been made?

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[2] Muschallik: Monatschr f. Geburtsh. u. Gynäk., Berlin, 1930, p. 376

[3] Watson Amer Jour. of Obstet. and Gyn., December, 1922, p. 603.

# Clinical and Laboratory Notes.

## A CASE OF CORONARY EMBOLISM.

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A number of references have recently been made in The Lancet to the clinical syndrome of thrombosis of the coronary arteries. Embolism of the coronaries is rarer than thrombosis, and the following note is of a case that I believe to have been embolism.

### *The Case Described.*

On May 6th, 1925, a male patient, aged 55, underwent an operation for intestinal obstruction of a non-malignant nature. It was necessary to relieve the obstruction by temporary drainage of the cæcum. He was extremely ill for many weeks after the operation. On May 24th there were signs of consolidation at the right base and in the axilla. Later there were signs of fluid with displacement of the heart to the left. The fluid was deeply blood-stained and sterile. The pulmonary condition may have been infarction. He made good progress, and on Sept. 17th an operation was performed to close the cæcal fistula. The operation was only partly successful at first but eventually the opening into the intestine was shut off. He was comfortable and in good health until Oct. 1st.

On Oct. 2nd, at 3 A.M., he woke with a shout and a start. His head felt full, he had great pain across the chest, chiefly on the left side. The pain was described as tight and clutching. He became cold and clammy with a subnormal temperature. The cheeks were a dusky blue and he was a leaden grey about the mouth. The radial pulse was not palpable and it seemed as if he would die in a few minutes. This condition persisted with little change through the day. At 5 P.M. the pulse was just palpable at the wrist but was very rapid and irregular. The hands were cold and clammy and he was sweating profusely on the head and chest. There was still great pain in the left side of the chest. The mental state was clear but apprehensive.

On examining the chest I found the apex beat in the anterior axillary line 4¾ inches from the mid-line. The cardiac dullness extended to the right of the sternum 2 inches from the mid-line. On auscultation there was a confusion of unrecognisable faint sounds but a distinct friction was heard in the third and fourth left interspaces close to the sternum and outwards for an inch. At 6 P.M. he was a better colour. The cardiac dullness was smaller and there was a resemblance in the heart sounds to a triple rhythm. Some beats did not produce a pulse at the wrist. The friction was not heard. At 8 P.M. the radial pulse was palpable and regular and had the characteristics of pulsus alternans, which persisted until 1 A.M. on Oct. 3rd. During the night he slept, became a better colour, and the sweating became less. He was out of pain. During sleep the pulse was regular and 120. Oct. 3rd: He had a good day and was comfortable though tired. He slept a good deal. At 6 P.M. the cardiac dullness was bounded by the left border of the sternum and the apex beat was 4 inches from the mid-line. The heart sounds were faint but audible and friction was again heard then and on the morning of the 4th, when he looked very much as he did before the attack though the pulse was 110 to 120. The temperature was subnormal for several days. The pulse remained rapid for ten days and then came down by degrees to 80.

He is now quite well, and as the wound is healed he is taking up his ordinary life once more.

### *Comment.*

The points of interest are: (1) sudden onset; (2) nearness to death for several hours; (3) persistence of thoracic pain for many hours; (4) complete temporary destruction of the cardiac rhythm which passed through a phase of pulsus alternans before returning to a regular but rapid rhythm; (5) pericardial friction, which was audible on some occasions for three days. There was no breathlessness; the liver was not enlarged; the back of the chest was not examined.

It would seem likely that this was a case of embolism of a branch or the main channel of the descending division of the left coronary artery. Where did the embolic material come from? Was it from the left auricular appendix where thrombus had formed during his stay in bed? Or, bearing in mind that he probably had had previously a pulmonary embolus, may not an embolus from the abdominal wall have passed through a patent foramen ovale? I will not offer an answer to these questions, but am content to put on record a probable case of coronary embolism with recovery.

## A CASE OF PNEUMOCOCCAL PERITONITIS.

### RECOVERY WITHOUT OPERATION.

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The following case appears to be an example of pneumococcal peritonitis recovering without operation.

G. N., a girl, aged 11, was admitted to the Royal Northern Hospital on March 3rd, 1925. On the previous day she had complained of general abdominal pain, and had vomited several times; the bowels had been constipated.

*Previous Health.*—In March, 1923, she was admitted to this hospital complaining of cough and pain in the right side of the abdomen of three days' duration. On admission, at the base of the right lung there were crepitations and broncho-vesicular breath sounds. The temperature was 101° F., the pulse-rate 100, and the respiration-rate 30. Three days later no abnormal physical signs could be found in the chest. There was slight tenderness in the right iliac fossa. She was discharged after two weeks, apparently in perfect health. No definite diagnosis was made, but it was thought to be either subacute appendicitis or mild pneumonia.

*Present Attack.*—On the day of admission the pain in the abdomen was more severe than on the previous day and there was slight cough. The abdomen moved well and no rigidity, but a general tenderness was present, perhaps most marked in the right lower quadrant. No other abnormal physical signs. The temperature was 99°, the pulse-rate 100, and the respiration-rate 25. On March 4th she was seen by a surgeon, who did not consider that appendicitis was present, and suggested that the condition was due to the lungs. The same evening the patient had a rigor; the temperature rose suddenly to 103°, the pulse-rate to 130, and the respiration-rate to 38. On the 5th she was transferred to the medical wards. She was still complaining of abdominal pain and there was slight cough but no expectoration. The face was flushed and the eyes bright, the conjunctivæ slightly injected. There was no rash. The tonsils were not enlarged or inflamed. No abnormal physical signs were found in heart, lungs, or nervous system. The abdomen was moderately distended but not tense. On palpation there was no muscular rigidity, but a general doughy sensation. The tenderness appeared general. Liver and spleen were not palpable. Blood culture, agglutination for the enteric group, and a blood count were performed on the 5th. The blood cultures were sterile. Agglutination was negative to *B. typhosus* and *B. paratyphosus* A and B in dilutions of from 1 in 25 to 1 in 250. The blood count showed 10,000 leucocytes per c.mm. with 73 per cent. of polymorphonuclear neutrophils and 2 per cent. of eosinophils. The cough ceased in the course of a few days and did not recur, and no abnormal physical signs developed in the lungs. Throughout the illness there was no complaint of headache, and no rash, cyanosis, glandular enlargement, or diarrhœa, and while under observation no vomiting.

The bowels were usually open once or twice a day with the aid of aperients.

From this time for nearly six weeks the patient became steadily worse. Temperature remained between 100° and 103°, moving *irregularly; pulse between* 100 and 130; respiration-rate about 25. On March 11th a second blood count showed an increasing polymorphonuclear leucocytosis, absence of eosinophils, and the presence of anæmia. The red cells numbered 4,300,000 per c.mm., and the hæmoglobin was 75 per cent. The leucocytes were 20,000 per c.mm., with 83 per cent. of polymorphonuclear neutrophils, and no eosinophils were seen. By the 20th the patient was profoundly ill and wasting rapidly. At night she was delirious, but was clearer during the day. She complained continually of abdominal pain, and occasionally acute attacks occurred for which she was given injections of morphine several times. A few rigors occurred at night. The abdomen was extremely tender on palpation. No local masses or tumours could be felt. The tip of the spleen was just palpable. On the 25th a blood count showed a rapid increase in the anæmia, increase in the polymorphonuclear leucocytosis, and a complete absence of eosinophils. The red cells numbered 3,200,000 per c.mm., and the hæmoglobin was 55 per cent. The leucocytes were 21,000 per c.mm. with 81 per cent. of polymorphonuclear neutrophils, and no eosinophils. By the 30th the wasting had become extreme and delirium was practically continuous. She still complained of severe abdominal pain and resented palpation. The abdomen was full but not tense, and the doughy sensation remained. The spleen was somewhat larger. There was no sweating. She was losing ground rapidly and now appeared certain to die. No satisfactory diagnosis had been made, but some form of tuberculosis was considered probable. From March 30th to April 3rd she appeared to be holding her own, and the temperature and pulse were lower. From April 3rd to 11th an exacerbation of abdominal pain occurred. The temperature rose to 104° and the pulse to 130, and the condition again appeared hopeless.

On April 11th a definite improvement occurred, and continued afterwards without intermission. By the 20th she was definitely better, mentally clear, and commencing *to take food. The abdomen was still tender and the spleen* just palpable. By the 30th the abdominal tenderness was very slight and the spleen was not palpable. Her weight was 5 st. 8 lb. The temperature had fallen to between 98° and 99°, and the pulse to between 100 and 110. By May 5th she was practically convalescent, though some slight abdominal tenderness remained and the abdomen was still somewhat distended and doughy. A blood count showed an improvement in the anæmia, a return of eosinophils, and a fall in the polymorphonuclear leucocytes with an absolute increase of lymphocytes. The red cells were 4,000,000 per c.mm., and the hæmoglobin 65 per cent. The leucocytes were 12,000 per c.mm. with 46 per cent of polymorphonuclear neutrophils, 43 per cent. of lymphocytes, and 3 per cent. of eosinophils.

On May 13th an agglutination test against the pneumococcus was made with the following result.

| Serum. | 1 in 2. | 1 in 5. | 1 in 10. | 1 in 20 | Saline. | Type of Pn. |
|---|---|---|---|---|---|---|
| Patient | Trace | – | – | – | – | 1 |
| " | – | – | – | – | – | 2 |
| " | + + | + + | + + | + | – | 3 |
| Control A | – | – | – | – | – | 3 |
| " B | – | – | – | – | – | 3 |
| " C | – | – | – | – | – | 3 |

The patient's serum caused complete agglutination of type 3 pneumococcus at a dilution of 1 in 10, and agglutination without sedimentation at 1 in 20; type 1 was only slightly agglutinated at 1 in 2, and type 2 was not affected at any dilution. Three control sera were tried against the type 3 pneumococcus with negative results. In view of the low titres obtained in agglutination tests with pneumococci, the above result was regarded as positive for type 3 pneumococcus.

The patient's subsequent progress was an uninterrupted improvement. She was discharged from hospital on June 4th in satisfactory general condition. No abdominal tenderness remained, although the abdomen still appeared somewhat full. The weight had increased to 6 st. 12 lb.

### *Commentary.*

The diagnosis was in doubt throughout the acute period. In the earlier stages the most likely conditions appeared to be appendicitis, pneumonia, and enteric. Against appendicitis was the complete absence of any rigidity in the abdomen and of localisation of the tenderness. No abnormal physical signs were found in the lungs throughout the attack. As the illness continued it no longer suggested typhoid fever. As the condition advanced and wasting became marked we were inclined to accept the diagnosis of some form of generalised *tuberculosis,* though without being satisfied by this explanation.

Unfortunately it was not until May 12th that the possibility of pneumococcal peritonitis occurred to us. The agglutination test then showed a definite reaction with type 3 strain of pneumococcus, while various controls had no effect. We have been unable to find a record of a similar case in which agglutination reactions have been performed. The patient returned to hospital on June 28th for observation and then appeared to have recovered completely.

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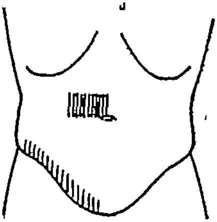
## HYPERÆSTHESIA IN DISEASE OF THE GALL-BLADDER.

By Zachary Cope, M.D., M.S. Lond.,
F.R.C.S. Eng.,
SENIOR SURGEON TO BOLINGBROKE HOSPITAL.

In some observations on cutaneous hyperæsthesia in acute abdominal disease published in The Lancet in 1924, I pointed *out that in gall-bladder disease* increased sensitiveness of the skin might be found either in the ninth segmental area or in the region just above Poupart's ligament on the right side of the body. At that time the comment was made: "It is quite conceivable that both the upper and the lower areas might be simultaneously involved in a case, but so far I have never seen such an occurrence." Since that time I have met with two cases which showed both areas of hyperæsthesia. Curiously enough, the first to show this interesting combination was a member of the medical profession.

Dr. X, aged 28, whom I saw in January, 1925, on account of severe pain in the right upper abdomen. He had recently had several such attacks, but the attack for which I saw him was more disabling than the others. There was tenderness and slight resistance in the right hypochondrium. On stroking the skin with a pin a very definite rectangular area of hyperæsthesia was found in the ninth segmental area above and to the right of the umbilicus, *whilst another* hypersensitive area was detected as a band about an inch and a half broad, stretching just above and along the whole length of the right Poupart's ligament. Diagnosis of cholecystitis with peritoneal irritation was confirmed at operation, when I removed a gall-bladder distended and in a state of subsiding inflammation. No gall-stones were present.


Areas of hyperæsthesia found in both cases described in the text.

The second case was seen at the Bolingbroke Hospital in August, 1925. A woman of middle age presented signs of inflammation in the right hypochondrium, and gave a history suggestive of biliary colic. She was slightly jaundiced. Examination showed two areas of hyperæsthesia almost exactly similar to those described above. Diagnosis of acute cholecystitis with gall-stones was confidently made and confirmed at operation. Six small gall-stones were found near the neck of the gall-bladder, which was in a state of subsiding inflammation.

In both of these cases the gall-bladder was removed and convalescence was uninterrupted.

Considering these two cases and others in which but one of the two areas were found to be involved, it appears reasonable to conclude that the simultaneous presence of these two areas of hyperæsthesia gives definite evidence of inflammation of the gall-bladder, accompanied by a certain amount of peritoneal irritation.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### COMBINED MEETING OF THE SECTIONS OF MEDICINE AND COMPARATIVE MEDICINE.

A combined meeting of these Sections was held on Jan. 26th with Dr. Hugh Thursfield, the President of the Section of Medicine, in the chair, when a discussion took place on

### Hodgkin's Disease in Man and Animals.

Sir **Humphry Rolleston**, who opened the discussion on behalf of the Section of Medicine, said that the disease was variously known as Hodgkin's lymphogranuloma, lymphadenoma, and lymphogranulomatosis. In 1865 Cohnheim applied to a condition in which the enlarged lymphatic glands had the histological structure seen in leukæmia, but the blood did not, the term aleukæmic leukæmia. A better term for this was aleukæmic lymphadenosis. Sir Humphry Rolleston favoured the use of the term Hodgkin's lymphogranuloma, as suggested by Prof. H. M. Turnbull. According to the returns of the Registrar-General, the disease seemed to be becoming commoner, for in the last ten years the deaths from it had risen from 280 to 371. The cause of the disease was unknown, and the only means of exactly defining what was meant by the name was a description of its histological structure. In fact, the diagnosis in a given case could be made only on microscopical characters. The response to radiant and other treatments could not be regarded as diagnostically conclusive. He recalled the main histological appearances, as independently described at about the same date by Prof. F. W. Andrewes and Miss Dorothy Reed—namely, (1) a diffuse alteration of the structural architecture of the glands as a whole, which showed (2) a diminished number of lymphocytes, (3) endothelial hyperplasia, (4) so-called lymphadenoma cells, and (5) in some cases well-marked eosinophilia. Often in the early stages there existed a leucopænia; while when the disease was widespread there was commonly a polymorphonuclear leucocytosis. Biopsies could not be regarded as free of fallacy, as the excised gland might show nothing more than an indefinite lymphoid hyperplasia, due either to inflammation, or as a process which was compensatory for the destruction of other lymphatic glands.

#### *Nature of the Disease.*

Three main views as to the nature of the disease had been advanced: that it was a neoplasm, a transition stage between neoplasm and inflammatory formation, or—the idea favoured by the speaker—an infective granuloma. The virus had been believed by various workers to be the tubercle bacillus, a Gram-positive pleomorphic diphtheroid bacillus, and a spirochæte, but Sir Humphry Rolleston considered none of these had been firmly proved to be the cause. He thought there were several reasons for looking upon Hodgkin's disease as a neoplasm, the chief being that in its early stage it was localised to existing lymphadenoid tissues, while at a later stage it invaded other non-lymphoid tissues and became generalised after the manner of a sarcoma. Also, in the late stages the histological features were, or might be, those of sarcoma, so that Ewing applied to it the term "Hodgkin's sarcoma." It was very difficult to decide whether the lymphogranuloma became transformed in its course into Hodgkin's sarcoma, or whether the condition was sarcomatous from the start and became more virulent as the resistance of the patient was lowered. Possibly a gland which was originally merely chronically inflamed became malignant later.

It was usually considered that the cervical glands were the primary site of lymphadenoma, as these glands had been said to be affected in from 50 to 76 per cent. of cases, though it did not follow that the glands first found to be enlarged were those first attacked. Based on the observation of 14 cases, Symmers stated that primary enlargement started in the abdominal or in the abdominal and thoracic glands ten times more often than in the cervical, and Ewing confirmed this. This matter of the starting-point was important because of determining in what area irradiation should be applied. Curiously, Hodgkin's disease very rarely attacked the lymphoid tissue of the alimentary canal.

#### *Is the Disease Transmitted to Animals?*

There appeared to be a lack of satisfactory evidence that Hodgkin's disease had ever been transmitted to animals, but Bunting and Yates, after repeated injections of the diphtheroid bacillus they isolated from lymphadenomatous glands into five Macacus rhesus monkeys, found in the latter appearances like those of the early changes of Hodgkin's disease as seen in man; this was a somewhat ambiguous finding as Bunting stated that the early stage of that disease resembled inflammation. Hodgkin's disease had been said to occur in the so-called lower animals, but Sir Humphry Rolleston asked how far this statement was based on clinical evidence and how far on the revelations of the microscope. The few recorded cases that he had come across could more correctly be named lymphoma. There seemed no reason why Hodgkin's disease should not occur in animals, but more information was needed as to the microscopic appearance in supposed instances.

#### *Diagnosis.*

The greatest difficulty in the differential diagnosis of Hodgkin's disease was its clinical separation from the primary sarcomata of lymphoid tissue. In many cases there was no other means than by the microscopical examination of an excised gland. Cases of secondary malignant growth in the cervical and supraclavicular glands might imitate Hodgkin's disease when the primary growth in the mediastinum or œsophagus was latent and there had been no skiagram. There were three clinical forms of tuberculous adenitis which must be considered in the diagnosis from lymphadenoma; the first was common, the second very rare, and the third very exceptional. The first of these, tuberculous glands in the neck, often simulated early lymphadenoma, especially when the glands showed tuberculous large-celled hyperplasia without necrosis or caseation. Secondly, generalised tuberculous adenitis might be accompanied by relapsing fever such as had been described as accom- panying lymphadenoma. When this form of adenitis occurred it might be associated with visceral infection. The third condition, but little seen in this country, was an adenolipomatosis, in which fatty growth occurred around lymphatic glands that might be tuberculous.

#### *Lymphadenitis in Animals.*

Prof. **G. H. Wooldridge**, speaking as a veterinarian, said that Hodgkin's disease was occasionally diagnosed in the lower animals, but he was sometimes in doubt as to the true nature of the disease so described. He believed the condition was infective and that it was a lymphadenitis, the causal organism having a low degree of virulence, and the effect being produced on the lymphatic glands, at first slowly. It was not due to the tubercle bacillus. In the cases about which he felt no doubt the condition had become well advanced before he saw the animal. There had been a gradual onset, accompanied by a hacking cough, and the pharyngeal glands were swollen and slightly painful. Often the appetite was well maintained until the disease was advanced, though there was a distinct loss of general bodily condition. Sometimes there were fainting fits. A constant feature was an almost universal enlargement of the abdominal glands. But the results of histological examination were disappointing. The blood showed no appreciable alteration in the number or the types of the leucocytes present. Though the spleen was considerably enlarged, it was of normal consistence, while the enlarged lymphatic glands showed only lymphoid hyperplasia. Up to the present time he had been disappointed in the result of treatment; the disease had been fatal in adult dogs in his hands, but he had had some success with young dogs. Prolonged exertion and excitement should be avoided, and the food should consist of meat, eggs, and milk; and cod-liver oil, extract of malt, and syrup of hypophosphites should be given. He had no experience of X ray or radium treatment; very few owners would go to that expense. He spoke also of a somewhat similar condition in sheep, known as caseous lymphadenitis, due to a Gram-positive diphtheroid bacillus. Usually it was seen only in the course of meat inspection, not during life, and the joint might be on the table before the lesion was seen!

### *Clinical Features of Hodgkin's Disease.*

Dr. H. **MORLEY FLETCHER** spoke mainly on the clinical features of the disease, which he thought was most likely of infective origin. The frequent occurrence in these cases of periodic fever was difficult to account for except on the assumption of an infective agent, probably a spirochæte, and this was supported by its behaviour under the administration of arsenic. It had been suggested that the pyrexia was due to the absorption of products from the glands; and the possibility of associated tuberculosis should always be borne in mind. He had usually found in the condition a polymorphonuclear leucocytosis of 10,000 to 14,000. The careful recording of minimum temperatures revealed the same type of chart as that associated with the name Pel-Ebstein. The abdominal manifestation of Hodgkin's disease might be latent, hence great difficulty might be experienced in diagnosing it. The result of X ray and arsenical treatment he had found to be striking, but the enlargement of thoracic and abdominal glands was liable to recur in a short time. He had not received encouraging results from the use of antimony.

Mr. L. P. **PUGH** said Hodgkin's disease was only one of a group of conditions in animals which showed a more or less generalised incidence on the reticulo-endothelial system, all being likewise characterised by some enlargement of the lymph glands, the liver, and spleen. These conditions were probably fatal, therefore a gland was not removed for histological examination. He considered that the leukæmias were due to spirochætes, and that this might also be true of Hodgkin's disease.

### *Experimental Work.*

Prof. M. J. **STEWART** (Leeds) described the inoculation experiments which were done by Dr. J. F. Dobson and himself on monkeys, injecting material from a succulent gland in a proved case of human Hodgkin's disease. In the first series pieces of gland were injected into the spleen and mesenteric lymph glands; in the second series an emulsion of Hodgkin glands was injected intravenously. A result in the first series was a striking hyperplasia of the lymph glands and of the lymphoid follicles of the spleen; in the ileocolic angle there was a chronic abscess with giant cells round about it. He regarded this as a foreign body reaction. In another case he found a small nematode in the pus, and there the foreign body reaction was stimulated by the presence of that parasite. The net result, in regard to the production of Hodgkin's disease, was negative. The evidence in favour of Hodgkin's disease being a granulomatous formation was very strong, and he believed a considerable proportion of cases ended with a condition indistinguishable from malignant disease. He gave an analysis of the findings in 400 cases in which glands were sent to his department for examination, and from the figures emphasised the great difficulty of diagnosing Hodgkin's disease clinically.

Mr. W. **HORNER ANDREWS**, speaking as a veterinarian, said his contribution to the discussion must be on the negative side, as, taking the histological changes as the criterion, he was not aware of a single case of Hodgkin's disease in lower animals. The condition which had been usually so regarded was one in which there was a general enlargement of lymphatic glands, usually associated with splenic enlargement, but not any leukæmia, and in which no bacterial cause, such as tubercle, could be demonstrated.

## SECTION OF UROLOGY.

A MEETING of this Section was held on Jan. 28th, Mr. R. H. **JOCELYN SWAN**, the President, being in the chair, when Mr. **GIRLING BALL** opened an informal discussion on

### PYELOGRAPHY.

He said that he used a large record syringe with a fine-bored needle and a solution of sodium bromide, or at times sodium iodide. He showed pyelograms of three cases:—

1. A man from Penang, complaining of renal colic without other symptoms, who produced 11 radiograms taken in all parts of the world and showing no evidence of calculus. The pyelogram showed typical early hydronephrosis with calculus. After the fluid had drained out a round shadow was left which proved to be the outline of a pure uric acid calculus, some of the opaque material having remained attached to it.

2. A girl of 10, with a chronic pain in the loin which incapacitated her for work. X rays showed shadows which were said to be calcareous lymph glands. The pyelogram showed the typical distension of the calyces associated with stone. When the kidney was removed 20 calculi were found in it.

3. A case showing the symptoms of renal disease and hæmaturia, diagnosed as calculus. A stereoscopic pyelogram showed that the shadow lay in front of the kidney; it proved to be a large mass of calcareous glands in the mesentery.

Mr. T. E. **HAMMOND** pointed out that the solution injected was of very high concentration and 12 per cent. sodium iodide might produce a severe reaction in the kidney. Possibly this was an idiosyncrasy to the drug; in one such case he had seen 10 gr. of iodide given by the mouth thrice daily produce iodism in two days. On account of this danger the pelvis should be washed out as soon as possible. Patients might also complain of irritation of the bladder after it had been washed out with oxycyanide of mercury; possibly this was due to the formation of sodium mercury iodide and might be obviated by the use of sodium chloride instead of oxycyanide. He showed slides illustrating a case of acute abdominal pain with a large tumour on the left side of the abdomen but no tenderness or rigidity, diagnosed as perforated gastric ulcer. The pyelogram showed no filling defect but a kink in the ureter. A tentative diagnosis was made of torsion of the spleen. At operation a large tumour of the kidney was found, and three months later the patient was admitted to hospital for intestinal obstruction. The pain was possibly due to hæmorrhage into the tumour. Another case, a woman of 40, had had pain on the left side for five years. A catheter would not pass into the kidney, but fluid injected led to pain similar to that she complained of. Pyelography showed a kink in the ureter. Under anæsthesia the catheter passed into the pelvis and was left for 12 hours. Since then there had been no symptoms. In another case of renal colic of five years' standing with bleeding from the left ureter, a No. 8 catheter failed to pass an obstruction 8 cm. up; a No. 7 passed into the pelvis, and the picture showed a dilatation of the ureter above the pelvic brim. At operation an abnormal uterine artery was found compressing the ureter above the pelvic brim, and there was a small uric acid stone.

Mr. **ALBAN ANDREWS** showed pictures of three cases:—

1. A man of 32 with congenital cystic kidneys; he had had hæmaturia from the left kidney for a week and one or two similar attacks during the preceding six months. Both kidneys were palpable, but the left was larger and more irregular.

2. A youth of 20 who had had one attack of pain in the right loin four months before being seen. There were no other symptoms except occasional cloudiness of the urine, thirst, and attacks of flushing and swelling under the eyes. Tests of function were quite satisfactory on the left but poor on the right. At operation adhesions were found between the ureter and the lower pole of the kidney with kinking.

The PRESIDENT remarked that Mr. Andrews had come up against the usual difficulty—the diagnosis between polycystic kidney and malignant disease.

Sir JOHN THOMSON-WALKER said that it was necessary to be careful about diagnosing disease on elongated calyces, which might produce no symptoms at all.

Mr. GILBERT SCOTT pointed out how important interpretation was and how difficult it was to decide whether any abnormality seen in the pyelogram was a variety of the normal or a pathological condition. Slight variations such as a partly filled pelvis might be due to faulty technique. He found it useful when in doubt to imagine that it was his own kidney on which he was pronouncing judgment. Technique should be as simple as possible; the whole process should be completed within half an hour. The catheter should be passed in the room in which the photograph was taken and three plates should be exposed—one before the injection; one when the pelvis was full, taken at full inspiration; and the third while the kidney was emptying, at full expiration. The two latter gave an idea of whether the kidney was fixed or not. The third picture might give evidence of a stone which the second did not show. A shadow was more likely to be thrown around the stone by sodium bromide than by collargol. A lateral view failed when it was most wanted for localisation of shadows in the kidney region; a far better method of localisation was to take two pictures, one in full inspiration and one in full expiration, noting whether the shadow moved with the kidney in all directions. He showed a number of cases:—

1. Of double ureter and pelvis on both sides with a hypernephroma of the lower pole on one side, the lower pelvis not functioning at all.

2. A slide showing the opaque substance trickling through into the tubules; it caused no ill-effects; some kidneys took the stain very easily.

3. A pyelogram showing variations of normal (*a*) very slender calyces, and (*b*) a number of small calyces.

4. Early hydronephrosis, with no blunting of the calyces, which did not show till very late in the condition, but revealed itself by increased breadth of the calyces and increased size of the pelvis.

5. Elongated calyces in a case of hypernephroma of the upper pole.

6. A similar hypernephroma showing the lower calyces dilated while the upper had disappeared altogether.

7. A similar disappearance of the upper calyces in what proved to be a benign papilloma.

8. A large calcareous growth which was never diagnosed.

In the last four cases a real diagnosis was very difficult; the great thing was to realise that a pathological condition was present.

Sir JOHN THOMSON-WALKER pointed out certain characteristics of the normal pelvis. The catheter should pass into the upper calyx, otherwise it raised the roof of the pelvis, which usually meant a displaced or abnormal kidney. In the normal pyelogram it was not possible to tell exactly where the pelvis ended and the ureter began. There was a certain curve between the upper ureter, the lower pelvis, and the lower calyx; in the abnormal kidney this curve became diminished or angular in proportion to the dilatation or displacement.

Mr. SWIFT JOLY showed a series of slides:—

1. A case with indefinite shadow in the lower pole after nephropexy. There were no primary calyces; all were of the secondary type.

2. A doubtful shadow which proved to be a bifurcation of the ureter.

3. A patient who had had a nephrolithotomy and showed a repetition of the symptoms. X rays gave an indefinite shadow, but the pyelogram showed that this was in connexion with the colon, and it proved to be a mass of tuberculous glands.

4. A small stone in both ureters on the level of the lowe pole. The picture showed the ureter still dilated five month after operation.

5. A case of double ureter.

6. Three patients with hæmaturia, with very few localising signs, diagnosed by pyelography as hypernephromata.

7. A case of renal tumour with marked distortion of the ureter and dilatation of the lower calyx.

8. A ureter drawn out into a wide curve, possibly due to immobility of the kidney.

9. A huge embryoma.

10. The kidney of a doctor from West Africa, who had had a series of boils since last August with pus in the urine. His condition progressed almost to a septicæmia, and when examined he proved to have a large fixed kidney and an irregular temperature about 102° F. The pyelogram showed an abscess opening into the middle calyx with elongation of the upper calyx.

11. A case of polycystic disease in a boy of 15.

12. A tuberculous kidney.

13. Extreme rotation of a kidney with abnormal renal artery.

11. Rotation with an abnormal artery passing through the upper pole and producing symptoms which were relieved by division of the vessel.

15. Two cases three years after nephropexy, showing the kidney dropped again with kinking of ureter.

16. An oxygen pyelogram of hydronephrosis, which had been operated on as a mesenteric cyst.

17. A large hydronephrosis in one-half of a horse-shoe kidney which the pyelogram failed to diagnose.

18. A case suspected of being a horse-shoe kidney but shown by pyelogram to be two separate organs with the right one rotated and the seat of malignant new growth.

Mr. F. McG. LOUGHNANE said he had had a number of cases of mobile kidney with no marked symptoms save, occasionally, frequency of micturition or painful micturition, or slight right-sided abdominal pain. All had shown a definite hydronephrosis on pyelography. He showed slides of two such cases of pain in the right iliac fossa, one of which was taken four years after appendicectomy. Injection of sodium iodide in each case caused the characteristic pain. He also showed a slide of perirenal oxygen inflation, showing the right kidney swivelled round the spine, and another showing hydronephrosis 15 years after nephropexy.

Mr. H. C. GAGE said that sodium iodide not stronger than 7–10 per cent. gave a thin but very good picture. With a stronger concentration the technique must be changed and the tension raised to 70,000 or 80,000 volts to get the necessary penetration and show any umbilication of the ends of the calyces. Otherwise blunting might appear where it did not really exist. A picture taken at the end of deep inspiration showed a deformation of the ureter and gave a false impression. Of great importance was the control of the patient; if he was very nervous he should be asked to breathe deeply through the nose. Breathing rapidly through the open mouth would assist in cases where pain was produced, and the patient could be asked to take small breaths or to stop breathing altogether while the picture was taken. There should be a preliminary examination before the pyelography if possible. He demonstrated a slide to show that pyelography with the patient in the vertical position was quite possible.

Mr. A. CLIFFORD MORSON said that correct interpretation was very difficult and required close coöperation between radiologist and urologist. The clinical picture was as valuable as the radiogram, and the pain produced by fluid injection should be compared with the pain the patient complained of. He always used sodium iodide from 15–25 per cent., and had given up the use of antiseptic with it, owing to the irritation caused by oxycyanide of mercury. He showed slides illustrating three cases:—

1. Case of painless hæmaturia. Pyelogram showed one kidney normal with distended calyces and the other wit something protruding on the inner side of the pelvis; th proved to be a squamous carcinoma.

2. A case of stony hard swelling in the left loin with shadow over the iliac crest. The pyelogram was not of muc help; it showed a little stunting of the lower calyces Operation revealed a very large hydatid cyst of the lowe pole, with calcified wall.

3. A case of painless hæmaturia in a boy of 17 with both kidneys palpable. Pyelography showed an abnormal bifid pelvis with elongated calyces, probably a congenital cystic condition.

Prof. E. B. FULLER (Cape Town) said that very valuable information about mobility was obtained by screening the kidney before the injection and watching the fluid go in and the way the pelvis distended. This also gave the best position for centring the photograph.

Mr. C. NITCH asked for an opinion on a case of a girl of 10 with colon bacilluria of six months' duration, and retention. Daily catheterisation had reduced the retention to 8 oz. residual urine. The bladder was inflamed and the neck œdematous and congested. Only 15 c.cm. of sodium bromide would pass in; it showed hydronephrosis on one side. Pyelography under anæsthesia showed that the opposite kidney was normal, as it was in function. If the condition was primarily in the bladder, why was the dilatation on one side only?

Mr. MORSON described similar cases in which unilateral congenital hydronephrosis was associated with occult spina bifida. He explained the one-sidedness by a faulty innervation of the bladder neck, so that one ureter gave way before the other.

The PRESIDENT said that he had found, working with Dr. R. Knox, that 10–12 per cent. sodium iodide gave the same density as sodium bromide, but he had used the latter extensively and satisfactorily. He used 12 per cent. sodium bromide when working with a small renal pelvis, but if he suspected dilatation he used up to 25 or 30 per cent. solutions, because of the difficulty of emptying a large pelvis and the resulting dilution of the injection fluid with urine. He took the first picture when 10 c.cm. had been injected, and if there was then no pain he injected up to 20 c.cm. He showed slides illustrating:—

1. A shadow thought to be a stone. Pyelography showed dilatation of the ureter due to spasm and the dilated calyx above the stone.

2. A large number of small stones in the kidney of a young child.

3. A case of hydronephrosis and dilated ureter with stone.

4. A boy with a stone in each ureter.

5. A stone in the ureter with large destruction of the kidney.

6. A case with attacks of renal colic; the X rays showed nothing, but pyelography revealed a marked kinking of the ureter, probably due to an aberrant artery. He had since learned to disregard kinks; often, as in this case, nothing was found at operation.

7. A case of hydronephrosis where the catheter would only pass in 2 in., but the injection was successful.

8. A case of severe pain in the left side with enlarged kidney and tortuous ureter. At operation the kidney was found to be slightly displaced by tuberculous glands.

9. A case of right-sided swelling with frequency of micturition and normal pyelogram. The swelling was a right lobe of the liver, and the frequency was due to a uterine fibroid.

10. A case that looked like pelvic hydronephrosis; the catheter would not pass up. A year later the condition was a renal hydronephrosis and the catheter was passed satisfactorily.

11. An incomplete filling of a large hydronephrosis which gave a picture like a new growth.

12. A fat patient with hæmaturia from the left kidney. Pyelography showed a flattened top to the pelvis which looked like a growth but was really due simply to flabbiness of the kidney.

13. A horse-shoe kidney, showing the characteristic tail on the inner side of the calyx.

14. A case of polycystic kidney with long calyces.

Mr. WINSBURY WHITE showed slides illustrating:—

1. Marked looping of the ureter with distension of the pelvis. The urine could not be got out, although the catheter passed a normal distance. He wondered whether it was justifiable to run in a fluid, knowing, as in this case, that it could not be extracted.

2. Two cases where the catheter passed up to 30 cm. but no urine drained out. The indigo-carmine test indicated hydronephrosis, and the kidney was removed without pyelography. He did not think pyelography should be done on such cases; the diagnosis was simple without.

3. A case of ureteral stricture with attacks of pain on the left side similar to that of hydronephrosis. The catheter would not pass up in this case either, but the thickened ureter could be palpated.

# SOCIETY OF MEDICAL OFFICERS OF HEALTH.

## MATERNITY AND CHILD WELFARE GROUP.

A MEETING of this Group was held on Jan. 21st, when Dr. HAROLD SCURFIELD, the Vice-President, took the chair. He referred to the death in December last of Dr. R. Woolsey Stocks, the President, and deplored the loss which the Group had suffered. A resolution of condolence was passed.

Dr. REGINALD JEWESBURY (St. Thomas's Hospital and Truby King Institute) then opened a discussion on

### *The Use of Cream in Infant Feeding.*

Fat, he said, was one of the most difficult and important constituents of the infant's diet, and nearly all prepared infant foods were deficient in it. The fat chosen might be natural cream or some other fat. Natural cream possessed the disadvantage of uncertain composition, depending on whether it was separated or centrifugalised cream, besides having all the ordinary disadvantages associated with cow's milk. He had found emulsified fats more satisfactory in use, and recommended a 50 per cent. emulsion containing cod-liver oil. The introduction of such a fat must in all cases be gradual. New Zealand cream was an example of such an emulsion. It was made from a recipe carefully compounded by the director of infant welfare in New Zealand, and was intended for use throughout that country. It was manufactured in a New Zealand Government factory, and Dr. Jewesbury had found it most satisfactory in use, readily assimilable, and sterile. It kept indefinitely, contained the vitamin intact, and had the high caloric value of 180 per oz. The composition was 50 per cent. fat, two-thirds of this being animal oil, including fresh New Zealand butter and cod-liver oil, and one-third vegetable oil, mainly pea-nut oil; 40 per cent. sugars, mainly dextrose; and a little lactose. The addition of the pea-nut oil was found of great assistance in promoting the digestibility of the animal oils. Whether this particular cream appealed to people or not, he strongly advocated the use of some such product of uniform content in infant welfare work throughout the country.

Dr. E. A. BARTON (University College Hospital) reminded his hearers that the digestibility of fats was very variable and was in inverse ratio to their melting points. Although human and cow's cream seemed comparable in this respect, in practice the infant had difficulty at first in taking a milk mixture containing cream in similar proportion to breast milk. He believed that artificial creams should only be used when clean cow's cream was unobtainable, as it was in poor districts during the war. Accordingly he had endeavoured to design a synthetic cream which would be cheap, clean, and readily assimilable, and which, in contrast to Dr. Eric Pritchard's early synthetic cream which he had previously used, would contain the fat-soluble vitamin A. With help from Dr. C. H. Hampshire a cream had been derived from the emulsification of beef suet, and this they had found readily tolerated by infants. Beef suet had a higher melting point and its digestibility was less than that of butter fat, but only to the extent of about 4 per cent. The fat content was 25 per cent.

Dr. DONALD PATERSON (Great Ormond-street and Infants Hospital) said that he believed synthetic creams to be an unnecessary complication of ordinary cod-liver oil emulsions. He thought that people erred in exaggerating the chances of too little fat being given, and stated that the curds in infant stools were nearly always fat curds. Cases suffering from this condition were typically the cases that developed summer diarrhœa. The fat tolerance of the infant was easily overstepped, and as fat was slow in leaving the stomach it was often, if given in excess, a cause of vomiting when the next feed was given. The vitamin content of ordinary cream varied greatly and was liable to be deficient in winter. He believed in giving all children cod-liver oil for its vitamin content, and this was done at Great Ormond-street. The psychology of the mother was a factor influencing the child's tolerance of fat. He advised giving cod-liver oil before instead of after three of the daily feeds.

Dr. J. F. Haines (assistant medical officer, St. Pancras) described the process of fat digestion in some detail, and stated that while the fine state of emulsification of fat in breast milk contributed to its ready digestion by the infant, it was possible that each kind of fat required its own enzyme, and that foreign fats given to the infant suffered on this account. Everyone agreed that it was necessary to approximate as nearly as possible to breast milk in composition and in ratio of constituents, and he thought that for this reason milk fat in the form of cream or butter was better than any vegetable or other animal fat. He had tried many synthetic creams, but for years now had advised the addition of fresh butter to infant feeds in a poor district where expense and simplicity had to be considered. His results had been extremely satisfactory. The percentages were easily calculated; one-quarter of a teaspoonful of butter in a 3 oz. feed raised the percentage of fat by 1. Where good cream was obtainable he found the old formula approximating to breast milk excellent. The important point was to introduce fat into the feeds slowly and gradually, remembering the infant's tendency to intolerance; if necessary alkalis and biliary stimulants should be given as well. Cod-liver oil given in a similar manner was the best substitute for milk fat.

Dr. W. J. Cox (medical officer of health, Watford) gave some results of administering Vitoleum cream, and Dr. Flora Shepherd dealt with the possibility of infection from cow's cream or butter.—Dr. Margaret Alden quoted a series of letters from various medical officers to whom she had written asking for information regarding their practice in the use of fats. Cod-liver oil seemed to be the fat in general favour.—Many other members also took part in the discussion, in closing which the Chairman referred to the pasteurisation which is, or used to be, the natural procedure in the making of Devonshire cream and Devonshire butter. It was decided to appoint a subcommittee on cream to report to the National League for Health, Maternity and Child Welfare in due course.

## JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, ST. ANDREWS.

At a meeting held on Jan. 26th Dr. A. Hynd gave a lecture-demonstration on the

### *Estimation of Blood-sugar.*

In introducing the subject the lecturer referred to the various processes which tend to keep the sugar content of the blood within normal limits. As the estimation of blood-sugar is carried out to throw light on the behaviour of one or other of these processes, the results can be of value only when the processes other than that under investigation are maintained at a constant level of activity. It was then pointed out that, as the glucose present in the blood exists in the free state and not combined with colloids, the sugar is not precipitated on deproteinisation. Also as, under normal conditions, the sugar contents of the corpuscles and plasma of human blood approximate to each other closely, there is no advantage in using plasma rather than whole blood for the determination. Consequently, the estimation can be carried out on a much smaller quantity of blood than would be necessary if it were essential to employ plasma.

Dr. Hynd indicated that the estimation of blood-sugar may be subdivided into two parts: (1) the removal of protein, and (2) the determination of the sugar content of the protein-free filtrate. The various methods for deproteinising blood were reviewed, and the fact that so many methods have been devised for this purpose indicates that the removal of protein from blood, in such a way that the subsequent sugar estimation is not interfered with, is no easy matter. The methods for the determination of the sugar content of the protein-free blood filtrate all depended on the reducing property of glucose, and were either colorimetric or volumetric processes. Although the former are much more rapidly carried out, and can be employed advantageously when a large number of estimations must be made, they are not so reliable as the volumetric methods. Of these the most useful for clinical work are the methods devised by Hagedorn and Jensen and by MacLean.

## ROYAL ACADEMY OF MEDICINE IN IRELAND.

## SECTION OF SURGERY.

A meeting of this Section was held on Jan. 15th with Mr. R. C. B. Maunsell, the President, in the chair.

### *Double Vestibulotomy.*

Dr. Horace Law and Dr. Geoffrey Bewley showed a patient on whom Dr. Law had performed this operation.

She was a girl aged 7 years who developed acute suppuration of the left middle ear on Nov. 27th. This appeared to progress favourably, but a week from the onset she complained of headache and nausea and had some convulsions. A tentative diagnosis of meningitis was made, but the cerebrospinal fluid was found to be clear and sterile though under considerable pressure. Shortly afterwards her pupils became unequal, the left being dilated; there was nystagmus to the right, and the eyes tended to deviate to the same side. Her knee-jerks were equal and normal; there was no ankle clonus and no Babinski's sign. Double vestibulotomy was done, and in a few hours the nystagmus, which before had been to the right, changed to the left; the pupils became equal and the temperature fell to normal. Subsequently the child did not develop any signs of giddiness, and she is now practically well.

Dr. Bewley said that before the operation the child was in a moribund state, and he thought that she would not have lived more than a few hours.

### *Foreign Body in the Brain.*

Sir William Wheeler exhibited a patient, aged 21, who was wounded in the head in May, 1921.

During some street fighting he received what was then thought to be a small scalp wound to the right of and above the occipital protuberance. He was not detained in hospital. At the time of his wound he noticed music in his ears, as if there was a band with drums in the locality. A fortnight later he was smoking a cigarette when he noticed a black dot in his right lateral field of vision. The speck moved medially, growing larger and becoming brighter until it appeared as a blinding light in the centre of his visual field. At this stage he became totally blind. He never lost consciousness but his memory was stimulated, and he saw men firing at him and believed that he was surrounded by some of his companions. The attack was followed by headache and vomiting. These attacks lasted about 20 minutes and recurred once or twice a month for four years. There was no olfactory disturbance. In the intervals he was well, but the constant appearance of the black spot made him mentally morbid.

The results of clinical examinations were entirely negative; there was no paralysis, motor or sensory; there were no alterations in the reflexes, and both fundi were normal. The fields of vision was not accurately examined before operation. X ray examinations disclosed that the nickel case of part of a conical bullet was lying in the base of the brain, just behind the petrous portion of the temporal bone at the level of the eminence in the superior semicircular canal. To approach the bullet in a direct line it would have been necessary to open the skull behind the vertical line, dividing the mastoid into equal parts. The direct route would have led through the sigmoid portion of the lateral sinus and some of the posterior branches of the middle meningeal artery. The skull was opened at a level above the location of the bullet, and when the meninges were divided a finger was passed under the temporal lobe in front of the cerebellum. After some difficulty a feeling of resistance was detected with the finger, and with the latter in situ a forceps was pushed through the temporal lobe in its direction. A mass about the size of an olive could now be located and was enucleated. There appeared to be a line of cleavage between the mass and the brain substance. On removal the tumour proved to be a mass of fibrous tissue incapsulating the conical point of the bullet. Before it could be extracted it became necessary to nibble away bone towards the base of the skull and the sigmoid portion of the lateral sinus was wounded. Control of the bleeding was not difficult. During the removal some brain matter on the lateral surface of the temporal lobe was injured and removed. In bulk the brain matter sacrificed was about the size of the tumour. At the close of the operation the bone was not replaced and no osteoplastic flap was made.

The after-history was uneventful, and a month after the operation the patient appeared quite well. He had no recurrence of his previous attacks.

It appeared that the area involved in this case was the association area which lay between the visual area behind and the portion of the brain to do with hearing, in front, and it was interesting, said Sir William Wheeler, to correlate these findings with the clinical history given by the patient. The three main points in the history were: the sounds of band music on the day he was wounded; the distorted visual phenomena occurring on an average twice a month for over four years; and the memory, during each attack, of troops firing at him and the feeling of being surrounded by his friends. He surmised that the association centre in the brain from which the foreign body was extracted was one of the habitats of the intellect which brought to memory hearing and sight. He ventured to think that it was the development of such a centre—absent at birth and in the lower animals—which accounted (inter alia) for the fact that Beethoven could write and conduct his symphonies at a time when he was totally deaf.

Sir William Wheeler also read a paper on a case of Colonic Infantilism.

## SECTION OF PATHOLOGY.

A MEETING of this Section was held on Jan. 8th with Prof. J. W. BIGGER, the President, in the chair.

Dr. J. LAIT exhibited three specimens of

### *Hypernephroma.*

These tumours, he said, were not commonly met with, though they formed a high proportion of renal new growths. He had encountered three cases in three months, which he considered unusual; two were removed by operation and one was discovered at an autopsy. Hypernephromata most commonly occurred between the ages of 35 and 60. One of the specimens had been removed from a boy aged 15, but the disease was rare in childhood.

The first specimen was removed from a woman aged 38, who had complained of painless hæmaturia for some months. The tumour was palpable and hypernephroma was diagnosed. At the operation the tumour was found to have extensively invaded the renal vein which was ligated and removed with the kidney. The specimen was a typical hypernephroma.

The second specimen was from a boy aged 15. He had been suffering from hæmaturia off and on for 12 months. On Oct. 1st, 1925, he injured his side in falling, and this was followed by considerable hæmaturia. During cystoscopy gentle pressure over the affected side was followed by profuse hæmorrhage from the corresponding ureter. The tumour was not palpable. It was removed by operation. The kidney was slightly enlarged, with subcapsular hæmorrhages and several calcified nodules over its lower pole. The pelvis was distended and apparently filled with blood clot. An incision was made into the kidney and a tumour was found occupying the lower half of the organ and invading the pelvis, causing its distension. It was very hæmorrhagic. Microscopic examination revealed an epithelial tumour formation, hypernephromatous in type. Sections also showed numerous small calcified nodules, cancellous bone, and much hæmorrhage.

The third specimen was discovered at a post-mortem examination in a woman aged 50. The tumour was the size of a fœtal head and there was practically no kidney substance left. The renal vein was involved. There were metastases in the lungs and liver, but the spleen was not involved.

Discussing the ætiology of hypernephroma, Dr. Lait asked whether it was usual to find cartilage and bone, as in the second case. Was the tumour correctly named? He believed that many of these tumours had a renal origin.

### *Tumour of the Humerus.*

Dr. F. S. BOURKE showed a specimen from a patient aged 31.

He was admitted to hospital in May, 1925, with a swelling of the elbow of two months' duration. At first it was thought to be tuberculous, and an incision was made. Dr. Bourke had considered that the tumour was an endothelioma, but Prof. Wigham, who had made a paraffin section, had said that he thought it was a cancer, the primary growth being probably in the thyroid or in the prostate. The man was examined very carefully, but no primary focus was found. In June the arm was removed, because it was thought that the tumour was an endothelioma and there was the possibility that it was merely a local growth. The patient remained in hospital until September, when the upper part of the right thigh began to swell and another tumour was found there. He was given deep X ray treatment, but gradually went downhill and developed secondaries all over the body. In October he developed bladder obstruction and an operation was done. It was found that the obstruction was from the prostate. Before the operation the patient said that six months previously he had had a hæmorrhage from the bladder, which he had not mentioned until then.

Dr. W. D. O'KELLY said that from the original section it would have been very hard to diagnose cancer, though the second section was full of it.

At the same meeting Dr. O'KELLY showed an economical lamp-holder for microscopical work, and Dr. M. M. MERRICK read a paper on the Bacteriological Findings in Vaginal Discharges, based on the results of a series of cases investigated by her and Dr. D. W. Douglas in the Coombe Hospital.

## SECTION OF ANATOMY AND PHYSIOLOGY.

A MEETING of this Section was held on Jan. 22nd, at which Dr. C. M. WEST, the President, made a communication on Hypospadias, and Dr. W. R. FEARON demonstrated a new Colour Test for Indoxyl and a

### *Simple Clinical Test for Bile.*

The bile-test he proposed is as follows: to 5 c.cm. of urine add an equal volume of glacial acetic acid and 1 drop of Milton. The presence of bile is shown by the development of a deep green colour, which changes to dark blue and then to purple on the addition of another drop or two of Milton. In character, he said, the test was similar to the Gmelin-Hammarsten reaction, involving the conversion of the pigment bilirubin into a series of coloured oxidation derivatives. Of these the blue compound, bilicyanin, was the most intense, and its recognition determined the delicacy of the test. The glacial acetic acid liberated the bilirubin, and acted as a solvent for the pigments. In the absence of Milton (a proprietary preparation of sodium hypochlorite) other oxidising agents might be used, such as 3 per cent. hydrogen peroxide, followed by gentle warming. But the results obtained with Milton were much more delicate. The test would detect 1 part of bilirubin in 100,000 parts of urine, thus comparing favourably with the other direct tests for bile.[1]

## BUXTON MEDICAL RESEARCH SOCIETY.

AT a meeting of this Society held at the Devonshire Hospital, Buxton, on Jan. 12th, Dr. J. A. RYLE (London) delivered an address on

### *Hyperpiesia.*

After a tribute to the late Sir Clifford Allbutt for his work in delimiting hyperpiesia from renal and other forms of hyperpiesis on the one hand, and from senile or decrescent atheroma on the other, Dr. Ryle suggested that although it was interesting to speculate on the existence and nature of a pressor substance, it was at present more profitable to bear in mind certain known ætiological factors. We should not neglect older methods of clinical study in our eagerness to unearth specific causal agents. He regarded bacterial and intestinal toxins as unlikely factors, partly because most of these toxins have a depressor rather than a pressor effect, and partly because the majority of hyperpietic patients have been robust and healthy individuals with a striking immunity from infection. Diathesis was of particular importance in hyperpiesia. It had long been recognised that hyperpiesia was more common in robust individuals, and that there was frequently a family history of deaths from cerebral hæmorrhage or cardiac defeat in the fifth and sixth decades. An analysis of 50 cases of hyperpiesia which he had made had given the following results: 62 per cent. of the patients were recorded as robust, healthy, stout, plethoric, or hypersthenic; 18 per cent. as average; 14 per cent. as of poor physique; and 6 per cent. as lean and nervous. The outstanding characters of the hypersthenic diathesis were a full habit, a broad chest, a good colour, and a pronounced tonicity of both skeletal and plain muscle. The stomach was hypertonic and the appetite and capacity for work were exaggerated. Diathesis could be defined as an inherent liability to retain the impress of certain adverse stimuli. Patients with a physiological hypertonus of vascular plain muscle were more likely to retain permanently the effects of such stimuli as overwork, over-eating, and over-anxiety, which were known to raise the blood pressure. Infections only appeared to play an important part in the small group described as of poor physique and in a few of the group called average. The high incidence of the female cases — 54 per cent. as compared with 46 per cent. of males in his series— was probably due to the inclusion of cases of menopausal hyperpiesia. After discussing therapeutic measures such as alteration in mode of life, holidays, dietary, weight-reduction, venesection, and diathermy, Dr. Ryle suggested a plan for prophylaxis based on the popularisation of periodic physical examinations after the fourth decade, attention to family history and physical type, and the systematic use of the sphygmomanometer.

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[1] Hammarsten, O., 1913: Physiologischen Chemie, 8th ed., Chap. 7.

## LIVERPOOL MEDICAL INSTITUTION.

A PATHOLOGICAL meeting was held on Jan. 21st, when Mr. K. W. MONSARRAT read a paper on the

*Ætiology of Chronic Gastric and Duodenal Ulceration.*

He reviewed the evidence on the question of infection, mentioning the work of Bolton, Türck, Dawson, Rosenow, and others. He then passed to the consideration of the rôle played by alterations in the gastric chemistry, and argued that such alterations could not be considered the chief agency in the production of chronic ulcer. In the third place he reviewed the work of Cannon, Carlson, Rogers, and others on disorders of gastric rhythm and tonus. He drew the following conclusions from his review of the subject:—

1. There is no satisfactory evidence that chronic gastric and duodenal ulceration is primarily due to direct invasion of the stomach or duodenal wall by specific organisms.

2. Chronic gastric and duodenal ulceration is not caused by alterations in the chemistry of the gastric secretions.

3. The evidence available points to alteration in gastric rhythm being the primary morbid condition which, when persistent, leads to the development of ulceration.

4. The site of the ulceration is the site of maximum impact of gastric contents, whose normal neutralisation has been interfered with by the altered gastric rhythm.

5. The gastric secretions, innocuous to the stomach wall under normal conditions, cause irritation and eventual ulceration when the gastric rhythm is altered; trophic changes may also prepare the way for this action.

6. The fundamental condition on which these morbid changes in gastric motility and rhythm depend is doubtless a disorder of gastric innervation, which may have its origin in toxic influences or psychic influences, or in reflex influences from disease elsewhere. The innervation of the stomach is not, however, so completely analysed as to make it possible to say whether these influences bear on an autonomic gastric system, or whether they affect the stomach by way of the vagus or sympathetic. There is, however, some evidence that in the gastric type which is usually associated with duodenal ulceration there is some inhibition of impulses by the splanchnic path, and that in the gastric type which is usually associated with gastric ulceration it is the vagus impulse which is depressed.

Mr. Monsarrat pointed out that there were many questions still unsettled, particularly in regard to the part played by infection, by alterations in the gastric secretion, and by influence through the nervous system.

# Reviews and Notices of Books.

FORENSIC MEDICINE AND TOXICOLOGY.

*Buchanan's Text-book of Forensic Medicine and Toxicology.* Ninth edition. Revised by JOHN E. W. MACFALL, M.D., D.P.H. Liverp., M.B., Ch.B. Vict., Ph.C., Professor in Forensic Medicine and Toxicology, University of Liverpool. Edinburgh: E. and S. Livingstone. 1925. Pp. 445. 15s.

THIS work was formerly known as Husband's Forensic Medicine and it included public health. The eighth edition, brought out by Dr. R. J. M. Buchanan, dealt only with forensic medicine, the public health section being published separately. The present (ninth) edition is entrusted to Dr. MacFall.

The first section dealing with forensic medicine is clearly and concisely written, with much material arranged in tabular form, and is profusely illustrated. The tables of measurement of structures make use of the unfamiliar unit of "lines"—e.g., 2 inches 8 lines. A line (one-twelfth of an inch) is a convenient term, but so rarely employed as perhaps to require explanation. The chapter on blood stains is complete and accurate with one exception. This is the italicised statement that the guaiacum test "reacts to no coloured substance except blood." If this were so, there would be no need for other tests except those determining the species from which the blood was derived. Insulin poisoning, producing hypoglycæmia, might have been included in the differential diagnosis of states of coma.

In the second section which deals with toxicology the author has attempted to put much matter in a small space, with the result that analytical details suffer. The difficulty of condensing such details is obvious, but the reader may be led into serious error, when he attempts to perform tests suitable for pure substances on viscera, medicines, or remains of poison in glasses, unless he receives the fullest guidance in the methods of isolation of the suspected substance in a state of purity. Objection is taken by the author to the Reinsch test owing to the danger of impure hydrochloric acid or copper, whereas in discussing Marsh's process this question is dismissed by stating that absolute purity of reagents must be ensured. The Marsh test is much more delicate than the Reinsch test, therefore the purity of reagents is far more important. In practice purity of reagents is a continual worry when the Marsh test is being used, whereas with the Reinsch test, using ordinary "arsenic-free" reagents, there is seldom need for anxiety. In this connexion it is surprising to find no mention of the electrolytic process for Marsh's method. The analysis of material containing sulphuric acid is unsatisfactory and difficult to understand. If the details were followed as here given, deduction from results would not be correct, if indeed any result was obtained at all. The iodic acid test for morphine is incompletely set out, and the most important test for cocaine—namely, the permanganate test—is not among the six tests described. Poisoning by muriatic acid is stated to be so rare that the symptoms have not been well studied. Yet in the Registrar-General's reports for 1921-23, 210 deaths are given as due to hydrochloric acid and only 20 for both nitric and sulphuric acid.

Students and practitioners will find the parts of the book which are of chief interest to them—those dealing with symptoms, post-mortem appearances, and treatment—reliable, and as detailed as possible in a work of this size. The index is good and misprints are few.

ON THE PANEL.

By a Panel Doctor. With a Preface by C. M. WILSON. London: Faber and Gwyer, Ltd. (The Scientific Press). 1926. Pp. 204. 6s.

THIS is a useful little book recording the experience on the panel side of practice in a country town. The author and his partner are responsible for 2500 panel patients, and the various chapters give a simple and candid account of what they do and how they do it, of what are their difficulties and how they surmount them, indicating at the same time many places where a better public understanding of insurance practice will automatically remove situations that are now embarrassing. The young practitioner may be warmly advised to read the first eight chapters, though this is not to suggest that he will not learn much that is useful from the rest of the work. But the earlier part of the book is full of practical advice to the man starting in practice as to the right methods of dealing with the insured man and woman—methods which necessitate the cultivation of a real sympathy with the general position as well as with the individual temperament of panel patients. Although the author nowhere says it in words, he is considering throughout the situation of a man who is in partnership, and so consistently is his advice coloured by a knowledge of the value and advantages of partnership, that he may be said to imply that the only reasonable method of entering upon panel practice for the young man is in association with a senior of assured position.

In dealing at the end of the book with the question of a State Medical Service the author reaches the conclusion that no adequate scheme for such a service, or for a greatly extended insurance scheme, is likely to be other than extremely expensive; and he demonstrates, along lines that are mostly familiar, that to spend a great deal of money in the institution of a State Medical Service would be to spend it badly, if only because the valued right of the patient to choose his own doctor would necessarily go. He sets out fairly the arguments in favour of the socialistic plan, such as removal of the doctor's anxiety with regard to financial position, the possibility of starting without capital expenditure, and the more even distribution of doctors in accordance with the density of the population, but counters them with the opinion that the loss to the patient of the free choice of doctor is fatal to the scheme.

### LIFE OF FLORENCE NIGHTINGALE.

By Sir EDWARD COOK; Abridged and revised by ROSALIND NASH. London: Macmillan and Co. 1925. Pp. 401. 15*s*.

Sir Edward Cook had intended to write a "Short *Life of Florence Nightingale*" as a pendant to his monumental work in two volumes reviewed in THE LANCET in 1913 (ii, 1483). His death prevented the carrying out of this project, but Miss Nash has produced an admirable abridgement of the larger work together with some fresh matter, details of which will be found in the preface. The fact that the medical services of the Navy and Army during the Great War were the subject of universal admiration was in great part due to the initiative and passionate energy of Florence Nightingale during and after the Crimean War, a period of her life which by its dramatic incidents and its awakening effects upon the national conscience rather overshadows her admirable social services. Still her work in the Crimea and what followed as a corollary, the reorganisation of the War Office with the aid of Sidney Herbert, were events of outstanding importance. When the Crimean War broke out we were so unprepared that the fuses for the shells of the first battering train sent out had been in store since Waterloo and there were not enough shells fully to furnish it. The medical arrangements were beyond contempt, and no wonder when the Director-General of the Medical Department in London was under five distinct masters—the Commander-in-Chief, the Secretary of State, the Secretary of War, the Master-General of Ordnance, and the Board of Ordnance. There is a passage in Livy (Bk. II., 57) which *mutatis mutandis* exactly describes the situation: "While the tribunes and the consuls each tried to bring everything under their respective authority there was no central unity of command, the nation was distracted and torn in two, and the thing sought for appeared to be rather in whose hands power should be, than that its safety should be preserved." The Government, with the exception of Herbert, most of the medical officers at the front, the old soldiers, the camp and port authorities, were all afraid or unwilling to move. Into this blood-stained welter of ignorance and officialism Florence Nightingale came to reduce the chaos to order; how she did it is known to all the world. Afterwards she continued her work, to the lasting benefit of hospitals and public health throughout the world.

### FRACTURES AND DISLOCATIONS.

*Treatment of Fractures and Dislocations in General Practice.* Second edition. By C. MAX PAGE, D.S.O., M.S. Lond., F.R.C.S., Senior Surgeon to Out-patients, St. Thomas's Hospital, &c., and W. ROWLEY BRISTOW, M.B., B.S. Lond., F.R.C.S., Surgeon to the Orthopædic Department, St. Thomas's Hospital. London: Humphrey Milford, Oxford University Press. 1925. With 118 figures in the text. Pp. xiii + 270. 12*s*. 6*d*.

Two years ago (THE LANCET, 1923, ii., 1355) we welcomed the first edition of this book, for which we predicted a popular success with surgeons as well as with the practitioners for whom it was primarily designed. The title has been altered to include dislocations; the additional matter certainly increases the value of the book, of which the price remains unchanged. Some figures have been withdrawn, but more have been added. The new chapter on dislocations in general contains much sound advice, and the sections devoted to dislocations in the chapters dealing with the various bones should be of great utility. The classical but rough-and-ready method of reduction of a dislocated shoulder by the heel in the axilla has fallen out of use and the authors of this book teach that it should never be employed. The method favoured is essentially that of Kocher. Other dislocations are shortly but adequately dealt with. This little book should receive a permanent place among modern surgical handbooks.

## JOURNALS.

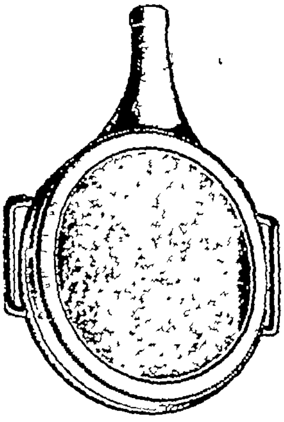
JOURNAL OF PATHOLOGY AND BACTERIOLOGY. Vol. XXIX., No. 1. Pp. 1–130. January, 1926.—The Identification of the So-called *B. mycoides corallinus* as a Streptothrix, by Vera B. Reader (London). Some particulars of the pigment and its spectrum are also given.—The Production of Experimental Endocarditis with Pneumococci and Streptococci in Immunised Animals, by H. D. Wright (London). Endocarditis can be produced in specifically immunised animals, and in some cases a progressively increasing septicæmia with marked antibody production has been seen such as occurs in subacute infective endocarditis in man, but the conditions which determine the occurrence of this state have not been determined.—Inhibition of Bacterial Growth by Some Amino-acids and its Bearing on the Use of Tryptic Digests as Culture Media, by J. Gordon and J. W. McLeod (Leeds). Some amino-acids (e.g., taurine, alanine) favour growth, some (e.g., cystine, tryptophane) are inhibitory, and some (e.g., arginine, tyrosine) are indifferent. Indol is a powerful antiseptic, and tryptophane probably owes its action to this. Serum protects bacteria against amino-acids and must be added to tryptic digest media to make them efficient.—A Laboratory Epidemic in Rats due to Gaertner's Bacillus, by N. D. Ball and C. Price-Jones (London). A running epidemic had killed 10 rats out of 602 in the course of 12 months. The whole rat population of the animal house, consisting of apparently healthy animals, was then killed and examined; Gaertner's bacillus was isolated from the spleen of 13, three of which also gave positive agglutinations; 15 others agglutinated without yielding the bacillus.—Immunological Notes, by A. T. Glenny, C. G. Pope, Hilda Waddington, and U. Wallace (London). The precipitate obtained in the Ramon testing of toxin antitoxin mixtures is actively antigenic. Toxin containing 0·5 per cent. phenol is more easily destroyed by heat than uncarbolised toxin, and the same is true, but to a less degree, of trikresol. Carbolised toxin-antitoxin mixtures may become toxic on evaporation because the phenol destroys antitoxin faster than toxin. Formaldehyde, 0·2 per cent., rapidly reduces the antitoxic value of serum. Toxin or toxoid precipitated with potash alum has a high *antigenic value. Toxoids which fail to flocculate in* Ramon tests may be good antigens.—Chordoma: a Review with Report of a New Sacrococcygeal Case, by M. J. Stewart and J. E. Morin (Leeds). A useful and comprehensive account of this rare tumour.—A Sacrococcygeal Chordoma, by W. A. Alexander and J. W. Struthers (Edinburgh). These papers were reviewed at some length in The Lancet last week (p. 248).—On the So-called Calcification in the Basal Ganglia of the Brain by E. W. Hurst. Deposits which stain blue-black with ordinary hæmatoxylin mixtures are fairly common in the lenticular nucleus either in the walls of the blood-vessels or as isolated spherical bodies in the tissues; the author found the former 50 times and the latter 68 times in 100 brains. They have been generally supposed to represent calcification, but neither the author nor anyone else has been able to produce definite evidence of this. All the vascular deposits and most of the isolated bodies contain abundant inorganic iron, connected with the high iron content of the globus pallidus.—Experiments on the Influence of Fatigue on Infection, by A. E. Boycott and C. Price-Jones (London). Exhaustion in a rotating drum has no influence on the mortality of rats inoculated with Gaertner's bacillus, but markedly increases illness and deaths in animals infected by feeding. Repeated exhaustion does not break down the resistance of the rat to tubercle. Fatigue is accompanied by a fall of body temperature to 85° F., or even lower.—The Nature of the Movements of the Omentum, by H. Florey and H. M. Carleton (Cambridge and Oxford). The omentum is incapable of moving itself. It is passively moved about the abdomen by posture, peristalsis of the bowels, and diaphragmatic movements.—The Action of Extracts of Mesenteric Lymph Glands on Leucocytes, by R. H. Mole (Moukden). Extracts of the glands of a spleenless rabbit cause leucocytosis in spleenless rabbits, but not in normal animals.—The Number of Lymphoid Follicles of the Human Large Intestine, by C. E. Dukes and H. J. R. Bussey. The authors enumerated the follicles in 117 cases by a simple technique. The average number per square centimetre is about 3¼ with a range of about 1 to 7. Children have more than adults, and there is an increase of 80 per cent. in passing from the ascending colon to the sigmoid.—Alum Carmine for Counterstaining Weigert-Pal Preparations, by J. *Anderson (London).—Dissecting Diverticula of the* Appendix, by J. A. Jenkins (Dunedin). A curious condition of which the author has seen six examples.—Staphylococci and Rheumatoid Arthritis, by H. W. Crowe (Harrogate). In *two* cases of rheumatoid arthritis cultures of staphylococci were obtained from the tissues about the joints obtained at operation.—Immunisation against *B. welchii*, by T. Dalling and J. H. Mason (London). The toxin and antitoxin can be accurately titrated by intravenous injection in mice. Active immunisation of sheep protects their lambs from a diarrhœal disease associated with the bacillus.—Vaccine *Treatment of Canine Leptospiral* Jaundice, by T. Dalling and C. C. Okell (London). A sterile carbolised emulsion of the liver of infected guinea-pigs is an effective vaccine for dogs against "the yellows."—Hæmagglutination by Horse Serum and Jaundice in Mice, by C. C. Okell and G. I. Steed (London). Some samples of horse serum agglutinate mouse red cells and on intravenous injection cause severe anæmia, jaundice, and death.—Combined Schick Test and Diphtheria Prophylactic: Combined Diphtheria-scarlet-fever Prophylactic, by A. T. Glenny and Hilda Waddington (London). A mixture of toxin, toxoid, and antitoxin can be prepared which contains the same amount of toxin as a Schick-testing dose and has at the same time enough toxoid to replace the first immunising dose of toxin-antitoxin mixture. This saves time and trouble. Scarlet fever streptococcus toxin may be added to toxin-antitoxin mixtures in considerable amount without reducing the efficacy of the latter; it is hoped by such mixtures to immunise against scarlet fever and diphtheria simultaneously.—Some Points Regarding the Nutrition of *B. typhosus* and *B. coli*, by A. Piney (London).—*Attenuation of Tubercle* Bacilli extending over a Period of Nineteen Years, by N. Raw (London). Human, bovine, and avian strains have become non-pathogenic.—Carcinoid Tumour of Appendix with Large Pelvic Deposits, by M. J. Stewart and A. L. Taylor (Leeds). Carcinoid tumours probably arise from the specialised cells of the crypts of Lieberkühn known as Kultschitzky's cells; they are the commonest form of tumour of the appendix, occur mostly in relatively young subjects, and rarely metastasise. In the present case two masses were removed from the pelvis as well as the appendix with the primary tumour and the patient is alive and well ten years later.—Carcinoid Tumour of Meckel's Diverticulum, by M. J. Stewart and A. L. Taylor (Leeds).

# New Inventions.

## A STETHOSCOPE FOR RECORDING BLOOD PRESSURE.

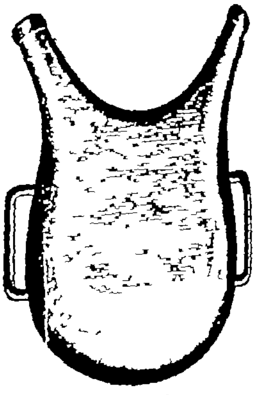
This stethoscope differs from others in the fact that it is set at right angles to those in ordinary use. This has many advantages as it obviates the former necessity of standing straight in front of the part to be auscultated and so avoids the necessity of undressing. Also it avoids the disturbance of bed patients, who are in pain, or who must lie on their backs, as the backs of the lungs can be examined whilst in that position. The heart may be examined whilst the patient lies face downwards and so is in close apposition to the chest wall. The new model is provided with side fixtures to enable one to fix it in situ for use with the sphygmometer in recording blood pressure, for which purpose it is especially suitable. It may be used either with or without a diaphragm. These chest-pieces are made single and double. The single is joined to the binaural frame with a Y-shaped fitting. I prefer to use the single as it is readily manipulated and has less friction sounds, whilst it conveys the required sounds as well as any other stethoscope. The illustrations show the two forms.

Fig. 1.



For single tube.

Fig. 2.



For two tubes.

These chest-pieces can be had from all medical instrument manufacturers.

W. C. Minchin, M.D.

T.

6, 1926.

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funds to be made available for urgent and necessary extensions of the service. This would, of course, involve legislation, but amendment of the Insurance Acts is rendered the more urgent by the risk of diversion in some other direction of these surplus funds. When, in the course of Poor-law reform, now contemplated by the Ministry of Health, the county councils come to exercise general supervision over the local health services as a whole, the time may well be opportune for some linking up of the insurance services with hospital provision and nursing facilities, both of which are urgently needed by insured persons. The final Scottish evidence before the Commission made it appear that an extra 3*s*. per annum per insured person would cover extension of services to include aids to diagnosis, second opinions, and hospital benefit.

The Commission has worked long and *faithfully*, and when its report is presented a heavy responsibility will rest on any legislature which fails to see that its recommendations are not promptly dealt with. They will necessarily be numerous, and some will be drastic; these facts will not excuse procrastination, as they have on other occasions when Royal Commissions have reported upon matters of national health.

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## SAFETY IN RADIOLOGICAL WORK.

SOME publicity has been given to the action of the authorities at the Coventry and Warwickshire Hospital in giving the contract for new X ray apparatus to Germany instead of to the British makers on the ground that, owing to the British methods of protection adopted, the apparatus was much more costly; it was also said to be more cumbrous in action than the apparatus purchasable from, and commonly used, in Germany. The published accounts of this action by the authorities of the hospital concerned may well be correct, and we do not think that the facts concerning the apparatus are seriously in dispute. It would be surprising if British X ray apparatus did not cost appreciably more than German, in view of the much greater importance attached in this country to the question of protection of the operators.

In this country a very important step forward was taken when in 1921 an X Ray and Radium Protection Committee was appointed, under the chairmanship of Sir HUMPHRY ROLLESTON, with the duty of formulating and detailing measures of safety for those engaged in this potentially dangerous work. Their first report was quickly followed by another, amplified in the light of newer knowledge, upon the harmful effects of the radiations. This action was followed by other countries, and it may be said that the measures of precaution recommended by France, America, and the Scandinavian countries show that just as serious a view is taken abroad of the consequences of repeated doses of radiations as was taken here. We believe that the standards of safety adopted in Germany are not so rigorous and, as a result, there is no doubt that some German X ray apparatus is much more lightly built and is probably quicker in
ction than that which finds official acceptance here.
he question that now arises is, are authorities whose
ies involve the spending of money often sub-
bed voluntarily by the public, justified in placing
s in Germany for such apparatus on these
ds? Sometimes it is necessary to go to other
ies for radiological apparatus, but no such
y arises here. We are convinced that the
recommendations are the minimum consistent
ty to the operator, and we would urge upon

the authorities concerned a reconsideration of their decision. Even on the lowest grounds, it might be suggested that if they pay less for the apparatus in the first instance, because it is not so well protected as the British apparatus, they may in years to come have to pay compensation for harm imposed upon those who use the apparatus. Moreover, no organisation which is established for the purpose of healing the sick can be justified in economies which might expose their staff to avoidable dangers. The Protection Committee of this country has had the great advantage of working intimately with the National Physical Laboratory on this subject. The laboratory not only issues certificates upon parts or complete sets of apparatus stating whether the requirements of the Protection Committee are being met, but the staff are able to send experts to inspect installations under actual working conditions.

The fact that personal inspection by the National Physical Laboratory has extended to over a hundred centres speaks well for the way in which the aims of the Protection Committee are being met throughout the country. Far from the recommendations made by them meeting with opposition, there is ample evidence to show that nearly everywhere authorities are anxious to adopt them. Those concerned with the administration of the Coventry and Warwickshire Hospital are, as far as we know, exceptional in the attitude they have adopted, and it remains to be seen whether their subscribers will approve of it. It must be admitted that no absolute guarantee of safety to those engaged in radiological work can be secured by any apparatus, but a strict adherence to the general lines of safety recommended in this country has gone a long way to lessen risks, and the advice of the Protection Committee should, we think, be adopted even if it involves increased outlay.

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## THE VIRUS OF FOOT-AND-MOUTH DISEASE.

IT is doubtful whether any ailment, not even excepting cancer and tuberculosis, has been more frequently mentioned in the public press during the last few years than foot-and-mouth disease. But for the most part newspapers have been content to record its outbreak, to enumerate the head of cattle destroyed, and to estimate periodically the cost of this scourge to the country. There has been no great campaign against official methods, no general demand that the scientific resources of the country should be mobilised to stamp out what is a very serious state of affairs. For this respite the Ministry of Agriculture may be thankful, for there seems a likelihood that when the public begin to inquire what steps are being taken to study the disease scientifically, some progress will already have been made. A long step in the right direction was taken when the official ban against the private study of foot-and-mouth disease was raised to a limited degree, and one of the first results of this more liberal policy appears in the December number of the *Journal of Comparative Pathology and Therapeutics*, where Dr. J. H. Arkwright, Dr. M. Burbury, Dr. S. P. Bedson, and Dr. H. B. Maitland record the results of work carried out by them at the Lister Institute.

The report is divided into two sections. The first section deals with the transmission of foot-and-mouth disease to rodents. The authors have confirmed the observations of continental workers that this disease can be easily and regularly transmitted to guinea-pigs, and have studied the main features of the disease in these animals in some detail. Transmission is usually effected by intracutaneous inoculation of the sole of the hind foot with diluted vesicle fluid, but intramuscular, subcutaneous, intracardiac, and intraperitoneal inoculations are also successful. The virus is also contained in the epithelium covering the vesicles—indeed, this was the source of the viruses used in these investigations; and the blood of animals in the early stages of the disease, as well as the oral secretions, are also infective. In guinea-pigs manifestations of the disease and the resulting immunity appear to be sufficiently clear-cut to make these animals reliable indicators of the presence or absence of an active virus, a matter of the first importance in the study of filterable viruses. Attempts to transmit the disease to rats and mice have been less successful, and it seems probable that the guinea-pig will remain the experimental animal of choice. Certain results which have been obtained in these investigations are rather startling in view of the extreme infectivity of the disease as it occurs among stock. No instance of spontaneous transmission from an infected to a susceptible guinea-pig was observed, though every opportunity was given for such a spread to take place. And though the blood of infected guinea-pigs contains the virus at certain periods of the disease, transmission by bugs from one animal to another has not been achieved. The second section of the paper contains a detailed account of the investigation made on the virus itself; all attempts at its cultivation have so far failed, and the authors find in their work confirmation of the unfavourable report of the recent German commission on the claims of Frosch and Dahmen to have succeeded in this matter. Many interesting observations have been made, however, on the survival of the virus in vitro under various conditions. It is found that survival is best at low temperatures, but in certain media it remains active at 37° C. for several days, and it is reasonably suggested that a careful study of these media may successfully pave the way to cultivation. The reaction of the medium appears to be of the highest importance, the optimum pH being 7·5–7·6, but, on the other hand, the virus seems to have a considerable degree of resistance to such agents as phenol, alcohol, and chloroform. Vesicle fluid, diluted 1 in 50 with saline, was shaken with chloroform in a stoppered bottle and then allowed to stand at room temperature in the dark for 176 hours, when it was still found to be infective.

The observations here briefly referred to appear to be of great interest and importance; the investigation is being carried out in a manner which augurs well for success, and it is not unreasonable to hope that a reproach to scientific medicine, by no means in this country alone, may soon cease to be justified.

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## THE NATURE OF MIGRAINE.

THE paroxysmal nervous headache known as migraine or "sick headache" is one of the most widespread and familiar of minor ailments. It is responsible for a great deal of suffering and loss of time, for it completely incapacitates its victims for periods varying from one to three days and is extremely painful. Probably because it is never fatal it has no known pathology, and practitioners who encounter it are reduced to tiding it over with palliatives and reassurance. To realise how vague an entity it is one has only to turn to a first-class work of reference. Osler mentions four out of the many theories of its causation: first, that it is a symptom of a toxæmia caused by bowel indigestion, uric acid, or some self-manufactured poison; secondly, that it is a vasomotor affection; thirdly, it is caused by the reflex action of some irritation such as a refractive error or troubles in the nose or sexual organs; fourthly, that it is due to a transient plugging of the foramen of Monro with increased pressure in the ventricles. It appears early in life and its attacks are precipitated by powerful emotion, fatigue of mind or body, digestive disturbances, or the ingestion of some particular kind of food. It has a fairly definite syndrome, and its premonitory signs are well marked; the patient sees apparitions of mice or dogs, or suffers from hemianopia or scotoma. Sometimes the hallucination takes the form of a fortification, brilliantly illuminated and coloured, and sometimes simply of zigzag lines or balls of light. Numbness, cramp, and psychic disturbances also accompany it. The headache begins as a localised spot on the temple, forehead, or eyeball, and spreads over one side of the head and sometimes to the neck and arm. It is generally unilateral, but may affect both sides. Vomiting is common and often gives relief. A recent German publication[1] includes it in the same classification with a group of conditions which, though they differ widely in their appearance, nevertheless have a great deal in common. Under the heading of "exudative paroxysms" are gathered together Czerny's diathesis, Quincke's œdema, brain œdemata, acute œdema of the mucous membranes, urticaria, asthma, epilepsy, colica mucosa, and dysmenorrhœa. While most of these, if not all, can be caused by organic brain lesions and toxæmias, such as those that attend diabetes and nephritis, their syndromes in a large number of the patients seem to be "idiopathic"—*i.e.*, they exist because of some unknown constitutional peculiarity. This predisposition is often inherited, and the sufferers nearly all have a personal or family history of mental or nervous disorder of some kind, but a large proportion are almost certainly due to sensitivity to foreign proteins, and it may be that where no neuropathic history is discoverable the patient will be found to have developed an anaphylaxis to one or more common proteins early in life. Sir Maurice Craig,[2] in a paper on the importance of protein hypersensitivity in a special group of epileptics, mentions that this is the cause of much migraine, and his skin-tests, which proved so valuable in detecting the offending proteins in epileptics, have been successfully applied to patients of the minor condition. Both ailments have disappeared when the offending substance was removed from the diet. As might be expected, migraine is common in conjunction with other complaints of this group. Vining[3] and others have written on migraine in combination with epilepsy, and Flatau[4] has declined to regard it as an entity, but holds that it is a symptom-complex that is only developed from a gouty diathesis. Dr. Bolten agrees with this view to the extent that he will not limit the causation to gout, but maintains that the reaction may occur in any neuro-toxic diathesis. He states that one of the symptoms of "genuine" migraine is always an œdema of the skin, as well as œdema of the cerebral membrane (probably also of the ependyma and tela chorioidea) and the lining of the stomach. The root-cause is some deficiency in the accelerating secretions, which gives the other normal secretions a toxic effect. The vasomotor paroxysm is a defence-mechanism to get rid of these toxins, which are excreted into the skin and mucous membranes and finally vomited or sweated. Nevertheless it hardly seems just to draw a hard-and-fast line between the migraine that has its origin in endocrine disturbance and the vasomotor reaction that is caused by reflex stimulation, exogenous toxæmia, emotional disturbance, fatigue or protein sensitivity, where there is no œdema and where the endocrine disturbance is probably a symptom and not a cause. It appears more likely that the headache and vomiting are, like epilepsy and other conditions, a reflex nervous reaction that can be produced by any cause that stimulates the sympathetic centres, whether toxic, nervous, or psychic.

# Annotations.

"Ne quid nimis."

## THE NURSING SERVICE IN MENTAL HOSPITALS.

THE Board of Control has had under consideration the Report of the Departmental Committee on Nursing together with the report of the proceedings of a conference which took place in London last April when the nursing service in mental hospitals was under discussion. Both the documents deserve serious attention, and the Board of Control has addressed a circular letter upon them to the visiting committees of every county and borough mental hospital in England and Wales. The desire of the Board is to raise the status of the nursing service in mental hospitals upon some uniform plan. At the present time many mental hospitals have difficulty in attracting and in retaining suitable women nurses, and improvements in the nursing service should obviously be general and in accordance with a definite plan if the service as a whole is to be raised. The Board feels that when it becomes known that all progressive visiting committees of mental institutions are recognising the necessity of making the nursing service a more attractive career for men and for women, the difficulties of recruiting for the service should disappear. The recommendations made by the Board in its circular letter begin with an alteration in the nomenclature of the staffs, which has the advantage of defining the duties of the nurses in each grade of either sex, this making it easier to understand why in certain circumstances it is preferable that the nurses should have been certificated or registered in both general and mental nursing. The facilities for giving to men a general hospital training are as yet very imperfect, so that it is a counsel of perfection that only doubly trained male nurses shall be available for the higher positions in the service, but efforts, which will be welcomed by the Board, might well be made to induce general hospitals to accept men as probationers for training in general nursing. The suitable arrangements ought not to be hard to come by. Further recommendations on the part of the Board of Control emphasise the necessity of better remuneration and living accommodation in the service, and for further organisation to provide occupations and recreation. On the difficult subject of the nursing of male patients by women nurses the Board states definitely that there are many male patients who can be nursed by women nurses with great advantage, agreeing here with the Report of the Departmental Committee, which advocated a wider extension of the practice.

## ECTOSCOPY.

IT is, of course, well known that a sudden cough leads to a slight temporary bulging of the intercostal spaces and a sudden inspiration to a slight temporary retraction. Dr. Eduard Weisz has studied this phenomenon in detail, and has found that slight temporary muscular movements produced by the same means are noticeable in regions that are at a distance from the chest, such as the abdomen and the back. An account of his work appears in another column of this issue. The best method of obtaining the movements is to get the subject to say suddenly the word "kitt"—the so-called speech phenomenon; but a sudden inspiratory sniff through the nose is also effective. Movements are best observed with the patient standing in a room with darkened walls and the light coming in from one side. Dr. Weisz has pointed out that the movements in the intercostal spaces occur at the borders of the lungs and they afford the best means clinically of determining the position of the base of the lung. This method of examination may be of real value in determining the presence of fluid in the thorax, when the chest is dull to percussion, since the speech phenomenon is particularly evident under these conditions. In fact, the bulging of the intercostal spaces will coincide with the lower level of the fluid, and if experience bears this out, this will be the only method we possess of separating the dull area due to fluid from the liver or spleen beneath. Dr. Weisz also claims to distinguish between organic and functional disease of the abdomen, since his method is another way of determining the alteration in tone of the muscles overlying an abnormally affected viscus, an alteration which is ordinarily determined by palpation when a sense of rigidity is experienced. But a warning is necessary here. It is probable that such a means of investigation indicates an abnormal condition of the viscus, but not whether this condition is produced by organic disease, since the viscus which produces the symptoms may react in the same manner both from functional and organic disease. The method may be regarded as a worthy addition to the procedures of clinical investigation, and it has already received considerable attention on the continent, especially in Germany.

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[1] Über Genese und Behandlung der Exsudativen Paroxysmen. Dr. G. C. Bolten. S. Karger, Berlin, 1923.

[2] THE LANCET, 1923, i., 741.

[3] THE LANCET, 1923, i., 122.

[4] Lewandowski's Handbuch, Bd. v., S. 312–426.

## THE EARLY HISTORY OF AERONAUTICS.

THE Royal Society of Medicine held another successful social evening on Feb. 1st, when Dr. F. J. Poynton gave an address on the Part Taken by Doctors in the Early Days of Aeronautics. He traced men's interest in aerial flight back to the earliest recorded times. In the "Book of the Dead," he pointed out, the spirits were shown winged, and there were many stories of men aspiring to the sky drawn by eagles or with wings. The earliest illustration was found in a wood-cut of Dædalus and Icarus, published in 1493. Turning to the particular history of the lighter-than-air machine, the lecturer drew attention to the many celebrated names associated with it. Roger Bacon, Montanus, Leonardo da Vinci, Robert Hook, Cavarro, Swedenborg, Lavoisier, and Priestley had all been bitten by the craze, but, as so often happened, the solution of the problem came from an unexpected source. In 1782 the two brothers Montgolfier first saw a paper sphere filled with heated air float to the ceiling of their room. They gave their first public demonstration in the following year, when a sphere with a capacity of 65 cubic feet was successfully floated with heated air. The importance of their success was realised at once. Two and a half months later hydrogen was first used by Mr. Charles to inflate a balloon of such dimensions that 1125 lb. of iron and 560 lb. of sulphuric acid were required to supply it. Fierce controversy ensued as to which of the two methods was the better. Later, in 1783, a cage-balloon carrying a sheep, a duck, and a cock was sent up in the presence of the King, the Queen (Marie Antoinette), and a large and distinguished crowd. Among them were Marat, who was very interested in aeronautics; Mr. Charles, who was afterwards saved from the guillotine by his eloquent address to the crowd, in which he recalled his aerial experiments and the popular enthusiasm they aroused; and the famous de Rozier, who began life as a medical student at Metz, but turned to science to escape the ordeal of anatomy. He became director of the first science museum in Paris, and in 1783 made an aerial journey across Paris. Benjamin Franklin was the link between these Parisian ventures and England, through his correspondence with Sir Joseph Banks, in the course of which he wrote: "Your philosophy *seems to be too bashful; in this* country we are not so ashamed of being laughed at." But it was not long before the "balloon madness" of Paris, with its caricatures, toy balloons, stamped handkerchiefs, and even garters, spread to London, and in September, 1783, a balloon was sent up from the Artillery Ground. On Feb. 2nd, 1784, a 5-foot balloon let free at Sandwich floated across to Flanders, and was the first to cross the Channel. In Scotland the versatile and ill-fated Dr. Tytler made an ascent in a hot-air balloon on August 25th, but returned to earth with some precipitancy. His later attempts failed. In 1784 the Italian Lunardi arrived in London with letters of introduction to Banks and others, and in September made an ascent in a gas balloon which was filled for the occasion by Dr. George Fordyce, of St. Thomas's Hospital. Among the spectators on that occasion were Mr. John Sheldon, F.R.S., of Paris, surgeon to the Westminster Infirmary; Dr. Jeffries, a Boston physician practising in London; and the Frenchman, Blanchard. These three were the pioneers of early English attempts to fly. The first *woman to make an aerial journey* was Lunardi's friend, Mrs. Sage. On both sides of the Channel feverish preparations were being made to cross the water, and after several difficulties Blanchard and Jeffries succeeded in doing so on Jan. 7th, 1785, after a journey of 2 hours and 17 minutes. de Rozier's effort from Boulogne resulted in the balloon crashing on French soil and killing both him and his companion, de Romain. Dr. Poynton illustrated his lecture by a large series of rare prints and contemporary documents.

## A DIAGNOSTIC SKIN REACTION FOR TYPHOID.

THE early course of typhoid fever rarely proceeds according to plan and there are many conditions which resemble it closely enough to give rise to anxiety. A reliable test which would exclude typhoid during the first few days of a febrile disease would be distinctly helpful in practice. Dr. G. Rodriguez, of Buenos Aires, has experimented on a skin reaction for typhoid which is analogous to the Schick and Dick reactions. He used Vincent's vaccine in doses of 100,000 bacilli in a volume of 0·1 c.cm., injected intradermally, and classified the reactions as weak, true, and strong, according to whether the result was a macule, a slight papule, or a large papule with tumescence. A series of 20 cases of typhoid and other diseases was tried with this dose, but the results suggested that it was too small, and Dr. Rodriguez increased it to 2 millions (in 0·1 c.cm.) for the next group of patients. Altogether the test was tried in 39 cases, of which 26 were typhoid in various stages, 4 were paratyphoid, and 9 were other febrile or bowel conditions. Of the typhoid cases 13 gave positive reactions, 12 negative, and 1 doubtful. All the remainder gave negative reactions. He concludes that early cases of typhoid give a positive reaction, which becomes negative again in convalescence, but not in the presence of a complication or relapse. Dr. Rodriguez quotes a paper by S. Costa, L. Boyer, and E. Giraud, who investigated a skin reaction produced by the filtrate of broth cultures filtered through a Chamberland candle. They found a negative reaction in 15 cases of typhoid fever, but 12 convalescent or cured cases gave a positive reaction. One normal individual and 11 with diseases other than typhoid also gave a positive reaction. Rodriguez attempted to repeat this work, but obtained only doubtful results.

## VOLUNTARY HOSPITAL DEVELOPMENTS.

THE fourth report of the Somerset Voluntary Hospitals Committee, under the Voluntary Hospitals Commission, has just been issued, and justifies its affirmation of the new hold now obtained by the voluntary system on public sentiment. There is no doubt that during the last five years a real change of public opinion has occurred. The advantages of the voluntary system have become more widely *appreciated, while its defects are being* removed and some of its financial problems are being solved, and it is the public, of course, who is supplying the solutions. The appointment of the Voluntary Hospitals Commission with local committees in every county and borough was a definite admission, or rather statement, that the public is intimately interested in the existence of the voluntary hospitals. When, some four years ago, Parliament voted £500,000 to meet the urgent plight in which some of these institutions found themselves, it followed that financial records, kept in accordance with some definite plan, became due to the community. The system of presentation of annual accounts in accordance with a uniform system has now been largely adopted, with the result that all who study the reports of their County Committee can understand what their own hospitals are doing for them, where the needs lie, and what claims there are upon individual or organised generosity. All classes have assisted in the financial recovery of the hospitals which has been a marked feature of the position since 1921, and the issue of such documents as the one before us will keep the general enthusiasm alive.

An important matter which the hospitals have recently been asked to consider is the institution of a general pension scheme for nurses. In February, 1923, the College of Nursing put forward a tentative scheme of universal application to all nurses in all forms of employment. Early in 1925 a Conference on Pensions for Hospital Officers and Nurses was convened by King Edward's Fund, and a scheme, which was prepared by a small committee of members invited to that Conference, has been circulated for the opinions of the voluntary hospitals. No recommendations were appended to the scheme; the difficulties ahead require deliberation. The last report of the Director of Hospital Services, Joint Council of the Order of St. John, and the British Red Cross Society, includes an article by Mr. H. N. Crouch, chairman of the Somerset Committee, in which the problem is set out with suggestions for its solution.

## OSMOTIC THERAPY IN GLAUCOMA.

Two articles in the January number of the *British Journal of Ophthalmology* by W. S. Duke-Elder throw new light on the pathology of glaucoma and point to a new direction in which the treatment of that disease is likely to develop. Further advances in ophthalmology, said Sir John Parsons in his Bowman lecture for 1925, will not be along the lines of improvement or elaboration of operative technique, but rather by a fuller understanding of the biochemistry of the eye and of the physiology of vision. Mr. Duke-Elder's contribution to this advance consists in the first place of an experimental investigation into the reaction of the intraocular pressure to osmotic variation in the blood, and in the second place of a record of the results of the clinical application of knowledge so gained in the treatment of four cases of glaucoma. The mass of the experimental work on intraocular pressure that has been done hitherto has been chiefly concerned with its relation to the general blood pressure, but although the blood pressure in the veins of the retina must obviously constitute a limit higher than which the intraocular pressure cannot rise without causing their collapse, investigation has entirely failed to establish any constant relation between the two. No doubt the energy necessary for the maintenance of the intraocular pressure is derived from the blood stream, but in considering this, to quote Mr. Duke-Elder, "in addition to the external dynamic energy of the blood in mass movement, which is measured as blood pressure, we must also take into account the internal kinetic energy of the blood in molecular movement, which is measured as osmotic pressure." To test this a series of experiments were performed on anæsthetised cats, the technique of which is fully explained. The main results of these experiments go to prove that the introduction of hypotonic saline solution into the blood is followed by a rise in intraocular pressure which lasts for some hours, while conversely the introduction of hypertonic solutions is followed by a corresponding fall in the intraocular pressure. In recording these experiments full credit is given to previous experimenters, of whose writings a considerable bibliography is appended. Indeed, one observer, E. Hertel, experimenting on rabbits, appears to have anticipated Duke-Elder's results. The clinical application of the knowledge so gained is already of much practical interest. A 30 per cent.—i.e., nearly saturated—solution of common salt was used. About 50 c.cm. of this solution injected slowly and evenly over a period of ten minutes into a vein is quite safe, and produces no discomfort except thirst (which must not be relieved). In the four patients so treated the intraocular tension was materially reduced, the effect lasting for several hours. Thus valuable time can be gained and operative measures performed under the best conditions. This is about as far as the practical application of the new treatment has gone at present. Whether or not more permanent benefit can be derived from it is a problem for the future.

## CALCIUM DEFICIENCY AND WHOOPING-COUGH.

IT might be thought comparatively easy to estimate the various inorganic constituents of the blood; but they are present in such small amounts that until recent years their estimation has been attended by some difficulty, unless fairly liberal quantities of blood are available. Now, however, with the advance of biochemical methods, such constituents as calcium and phosphorus can be readily determined on a few cubic centimetres of blood. Such routine determinations have considerably clarified our conceptions of rickets, and along with radiographic control they have given precision to ultra-violet light treatment. Already determinations of blood calcium in other conditions are beginning to yield results, and this is strikingly illustrated by two references to recent literature on subjects so far apart as whooping-cough in infants and milk fever in cows. G. F. Powers, in the *American Journal of Diseases of Children* for November, describes five cases of whooping-cough in children under 17 months in all of which the blood calcium was below normal (10 mg. per 100 c.cm. of blood); in one of them it was as low as 4·0 mg. This suggests that the convulsive spasms of pertussis are related to tetany, in which there is a diminution in the blood calcium, and it is possible that in pertussis characterised by marked convulsions the administration of calcium might be useful. The possibility of benefit being derived from light treatment also suggests itself. In milk fever in cows, Little and Wright[1] have recently demonstrated that the blood calcium is definitely subnormal. In mild cases they found a drop of from 20 to 30 per cent. at the onset of the disease, and in severe cases the drop was as much as 60 per cent. This is one of the first well-attested facts in the pathology of a condition which has given rise to much controversy, and the findings are of interest in view of the suggestion put forward by Dryerre and Greig,[2] that milk fever is due to a relative deficiency in the parathyroids which gives rise to guanidine intoxication. While a lowered blood calcium does not necessarily imply a parathyroid deficiency the correlation of the two conditions is sufficiently marked to warrant research along the lines of the suggested endocrine upset. It seems probable that similar investigations in other diseases will reveal further disordered mineral balances in the blood.

## THE INSTINCT OF SPEECH.

IN a recent number of the *British Journal of Psychology* (1925, xvi., 53) appeared a short paper by Dr. J. W. Tomb on the Intuitive Capacity of Children to Understand Spoken Language. The paper gives a summary of his observations of young children of English parentage born in India who, before the age of 18 months, are found able to understand and follow the directions of their parents in English, their ayahs in Bengali, and the house-servants in Hindustani, and who also at 3 and 4 years of age can converse freely with these different groups in their own tongues. The parents, on the contrary, with much labour and the aid of a teacher, may have acquired no more than is requisite to communicate necessary orders to the ayahs and house-servants, and do so often in disconnected words, unlike the children who speak in sentences. Dr. Tomb's observations are of much interest, but the inferences from his observations, on which he invites criticism, are open to question. "It is obvious," he says, "that a child's capacity for learning languages does not depend on intelligence, for if this were the case it is reasonable to assume that the parents would pick up the various vernaculars more quickly than their children." Most psychologists would grant that the linguistic capacity is not dependent on "general intelligence" alone, but is partly a "specific" innate capacity of the mind. Speech itself is an inborn instinct which, like all other instincts, lives by what it feeds upon and has its period of maximum activity during the early years of life. If no food be provided in the form of audible speech, as in the case of the child born deaf, the result is the deaf-mute. If, on the other hand, three or four languages be audible, all will be assimilated with equal ease, particularly during the early years. Let the admission of the deaf-mute into the deaf school be delayed until the age of (say) 10 or 12, and his acquirement of speech will be difficult, because of the weakening of the instinct from lack of use. In a similar way the Englishman transferred to India after attaining maturity has relative difficulty in understanding and acquiring facility in the native dialects. It is not, then, so much a matter of intelligence as of the functioning of an instinct, and Dr. Tomb's observations are confirmatory of what was previously known. The further inference made that a child must have a capacity for "intuitively placing the correct meaning on spoken sounds" is, we think, more than the facts justify. Meaning is indicated or suggested to the child in some manner other than speech, but he must obviously have the capacity to grasp and remember the association.

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[1] Brit. Jour. Exp. Path., 1925, vol. vi.

[2] THE LANCET, 1925, i., 1141.

## SURGICAL EXAMINATIONS.

THE qualifications demanded of a surgeon are many and exacting. Essentially he must have manual dexterity of a high order and his judgment must be sound; whilst a wisdom which comprehends more than the knowledge of his actual craft is almost a necessary asset. The evolutionary changes of late years have made him more and more independent of his medical colleague. The days have gone when the physician's advice as to the time and nature of an intervention in acute abdominal disease was sought as a matter of course. The vivid pictures of the operating-table have transformed the surgeon into a clinician whose pre-operative opinion has become of unassailable value. Whether it be in the realms of neurology or of diseases of the abdomen or chest, we see this change occurring, and perhaps a new generation of specialists will arise who will treat indiscriminately the medical and surgical diseases of the particular system of the body to which they have given their attention. At present the qualifications of the aspirant to surgery are tested by examinations which are chiefly calculated to reveal his clinical knowledge; and this they do with efficiency. His technical ability remains a closed book to the examiner. Yet how important manual dexterity is in surgery; every incision made is an irrevocable step taken, after which, however skilfully performed, there can be no absolute restitution to the status quo ante. Save in the case of nerves repair takes place solely by scar-tissue formation, and the body can never again be quite so perfect as it was before the surgeon's intervention. Sometimes the deviation from normal is so slight that it is not, or cannot be, noticed by the patient, and naturally this ideal is more often reached by the superlatively skilled than by the occasional operator. The remembrance of this fact indicates how essential it is to ensure reasonable technical ability in all those upon whom diplomas in surgery are conferred. To prevent that licensing of the incompetent, of which he recently complained,[1] Sir John O'Conor sends us a suggestion that "every candidate for any surgical diploma shall present full notes of cases with complete details ('steps') of ten major operations, on the living subject, performed by himself—each record to be signed by the surgeon (teacher) who *personally* directed and assisted him in each operation." As examples of those which he includes in the category of major operations Sir John O'Conor mentions those performed for septic fractures, arthrotomy, varicose veins, hydrocele, hæmorrhoids, empyema, urinary extravasation, septic endometritis, and incomplete abortion. The principle is good, for too much care cannot be taken to render men proficient who propose to practise surgery. An alternative system might require candidates to have held an appointment equivalent to that of a first assistant in a continental clinic for a definite period longer than the usual tenure of office of house surgeons in this country. It is an undisputed fact that much experience and knowledge of technique can be acquired by close association with a master surgeon, and if the candidate were required to have performed operations assisted by his teacher all reasonable steps would have been taken to render him proficient. There are, however, difficulties in carrying out such suggestions with our present system of medical education.

## CANCER IN RELATION TO OCCUPATION.

AN investigation into the Statistics of Cancer in Different Trades and Professions by Dr. Matthew Young and Mr. W. T. Russell, with the collaboration of Dr. John Brownlee and Dr. E. L. Collis[1] has just been published as a green book (Special Report Series No. 99) by the Medical Research Council. The work has been made possible by the courtesy of the Registrar-General in affording facilities of access to certain documents in his possession. These included cards on which were coded the sex, age, specific trade, and cause of death of men who died in 1910, 1911, and 1912. On 46,118 cards which recorded deaths from malignant disease the site of the tumour was for the most part noted, and it has thus been possible to make a detailed survey of the relation of cancer to occupation. A brief introduction is followed by a discussion of previously published data. The methods of analysis used in this investigation are then set out. There follow sections on the incidence of cancer in the principal sites in different occupations, and on the relationship between different types of cancer, between cancer in different sites and syphilis, and between cancer and chronic alcoholism. The conclusions of the investigation are then briefly summarised. The close association of some types of cancer with exposure to particular risks—for example, chimney-sweeps' cancer and mule-spinners' cancer—has been confirmed, but no conclusive evidence has been obtained of such a connexion between the nature of the employment and other forms of cancer, notably internal forms. In some occupations excessive smoking and drinking, which is permitted or facilitated by the nature of the occupation, appears to be the important predisposing factor and not anything inherent in the employment itself, while the incidence of syphilis in different occupational groups seems to have some association with that of lingual cancer. With the main conclusion that occupational risk is only one of several predisposing causes of cancer in different instances and under different circumstances all are likely to agree.

It was hoped that such an examination might give further information as to the wide influence of substances already recognised as harmful, or might even disclose other injurious substances. But the difficulty of interpreting the material has proved very great, and the result of a praiseworthy and laborious effort appears on the whole to be disappointing. In many trades or occupations the number employed is small and consequently the number of deaths is liable to considerable random error. Again, as is made clear in the foreword to the report, statistical science is still in a developmental stage, and there exists difference of opinion between persons equally competent to judge as to the applicability of particular methods of comparing figures. For example, the strong preference expressed by the authors for the use of the so-called life table death-rates over standardised death-rates is not shared by some of their colleagues, and there are other technical points over which experts are not yet in agreement. The use of the method of proportional mortality has the disadvantage that the proportion of cancer of any particular site in one occupational group may be high simply because within that group the rate of mortality from cancer of another site is low, and the majority of the Statistical Committee of the Council are of opinion that conclusions based upon this method and unconfirmed or incapable of confirmation by a study of the site rates themselves should be accepted with reserve. However, sufficient material is provided in the tabular matter of this report, and in data previously published, to permit other investigators to try and elucidate this complex subject by pursuing research on different lines.

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[1] THE LANCET, 1925, ii., 781.

[1] H.M. Stationery Office. 1926. Pp. 50. 1s. 6d.

## MEDICAL PRACTICE IN CHINA.

THE status of qualified medical men in China, whether missionaries or otherwise, is likely to be very uncertain if the rights which they have enjoyed as foreigners should be abolished. At present no protection is afforded them comparable to that which the profession has in England, America, and elsewhere. If a doctor in China has no status from a treaty he may be sued in a Chinese court and have to meet very heavy claims for damages, as was illustrated quite recently when a German doctor lost a patient after an operation and had to pay $3000 damages. The Chinese custom of paying the doctor as long as the family is in health need not complicate the situation, for after all it is but an illustration of contract practice, but the immediate difficulty is that there is no sort of medical registration. People with the most rudimentary knowledge—embryonic medical students or even hospital coolies—frequently set up in practice on their own, and such organisations as the China Medical Association and the China Medical Missionary Association are quite unable to control the unqualified practitioners. If no protection for medical men is arranged at the Extra-Territorial Conference their work in the future will be carried on with great risk and difficulty. If failure leads to financial disaster it may be supposed that only simple cases will be undertaken. There is little reason to think, however, that the Chinese Government would not welcome, in the interests of the medical profession among its own nationals, the setting up of a register of properly qualified medical men. Perhaps the plan followed by the Japanese when they took over Korea may be adopted. At first they had to recognise the existing native practitioners and doctors holding British degrees (these are still recognised). Only a five years' recognition within a limited area was granted to a large number of American doctors, but after the matter had been taken up diplomatically those who were already at work in Korea were given full permission to practise. Since then every newcomer from America has had to take a Japanese medical examination, and though an elaborate system of certificates and reports has been instituted and doctors are constantly under inspection, the net result, it is said, has been to the advantage of medical standards.

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NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC.—A post-graduate course started on Feb. 1st and will go on until March 20th. It includes demonstrations in the out-patient clinic on Monday, Tuesday, Thursday, and Friday afternoons, and a series of lectures by Dr. J. G. Greenfield, on the Pathology of the Nervous System, on Mondays at noon. If there are enough applicants there will also be lectures on the anatomy and physiology of the nervous system and clinical demonstrations on methods of examination. Further particulars may be had from the Dean of the Medical School of the Hospital, Queen-square, Bloomsbury, London, W.C. 1.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLIX.

## TREATMENT OF HYSTERICAL DISORDERS IN CHILDREN.

HYSTERICAL disorders below the age of puberty are not common, but do occur more frequently, even in quite young children, than is often supposed. Methods of treatment directed towards the immediate disabilities or symptoms of hysteria seldom fail. Greater difficulty is experienced in preparing against their recurrence. The hysterical temperament, when present, is inherent, not acquired, and, as Charcot says, "once hysterical, always liable to hysteria."

Hysteria is a condition difficult to define satisfactorily owing to the diversity of its symptoms, and to the lack of any known anatomical lesions on which to base its pathology. Definitions have been advanced by physiologists and psychologists, many of which are adequate up to a point, but none are sufficiently comprehensive to be entirely convincing. At the present day hysteria is generally considered to be a purely psychical disorder. The views of Babinski, Janet, and Freud are well known and need not be set out here. There are at least two outstanding features in the composition of hysterical subjects—namely, the presence of a neurotic temperament, with want of emotional balance and control of the will, and an unstable condition of the sympathetic nervous system. These are really the sources from which hysterical disorders spring. Evidence of sympathetic vaso-motor instability is more readily seen in the adult in such symptoms as flushings, faintings due to abdominal vascular distension with cerebral anæmia, and coldness and cyanosis of the extremities affected by hysterical palsies, often associated with absence of bleeding on pin-prick. Savill was the first to emphasise the importance of the rôle played by the sympathetic nervous system in hysteria, and even went so far as to state that most of the motor disorders of hysteria might be accounted for by local disturbances of the cerebral circulation. He was much impressed by the similarity of many hysterical motor disorders to those produced by definite vascular lesions in the brain. The continuation of the symptoms in the hysterical cases for indefinite periods after the supposed vascular disturbance he attributed to the psychical state of the patient. Although it is hardly possible to agree with all of his hypotheses, yet his theory of hysteria is decidedly attractive by reason of the effort made to formulate a pathological basis.

### *Hysterical Manifestations in Childhood.*

The commonest hysterical disorders in childhood are related to the motor system, and consist of paraplegias and monoplegias. Both spastic and flaccid types occur, but the loss of power is seldom complete, and shows variations in degree from day to day. In the spastic form, which is the commonest, some degree of flexion spasm or contraction is often present at the joints, and severe pain is usually complained of. Hysterical pain and spasm localised to a single joint, usually the hip, is sometimes observed, and may simulate very closely organic hip-joint disease. Spinal rigidity resembling caries is another hysterical manifestation sometimes met with in children. That curious condition known as astasia-abasia, in which the patient can scarcely stand or walk, and yet is able to perform all movements of the legs voluntarily when lying in bed, may also be observed. Sensory manifestations by themselves are exceedingly rare, but may be present in association with paralysis, and usually assume the stocking and glove distribution of anæsthesia, with a definite upper level which is characteristic of their hysterical nature. Other manifestations which may arise are hysterical dysphagia, aphonia, and hysterical vomiting. Mutism, defects of vision, ptosis or spasm of the orbiculares palpebrarum, tremors and convulsions of hysterical origin are very rarely met with before puberty.

### *Ætiology and Diagnosis.*

Evidence of neuropathy is nearly always traceable in the parentage of those who are the subjects of hysteria. The children of alcoholic parents are liable to be affected. The instability of the nervous system is inherited and permanent, but may be influenced by training. It is an interesting fact that before the advent of the secondary sex characteristics the disproportion between the sexes in the incidence of hysteria is very much smaller than after puberty. In fact, in childhood almost as many boys as girls are affected. Five years is roughly the earliest age at which hysterical disorders may be observed.

In hysteria the necessity of the diagnosis being correct is of the utmost importance. The most likely diseases in childhood to be confounded with hysteria are poliomyelitis, early spinal caries, and organic disease of the joints; disseminated sclerosis can fortunately be excluded at this period. It is well to remember that most hysterical disorders in children arise in association with some slight trauma which has caused local pain, or may even be superimposed upon some organic lesion in its early stages, such as tuberculous disease of bone. Other cases seem to be occasioned by purely psychic causes, such as shock and grief, or a child may by a process of subconscious imitation develop the infirmities of another individual with whom it has been in close contact. Stigmata of hysteria, such as hysterogenic zones, globus hystericus, flushings and faintings, which are an aid in diagnosis among adult patients, are very rarely observed in childhood. Numerous children are of the emotional or "nervous" type, but those which are liable to hysterical manifestations present no hall-mark by which to distinguish them.

### *Treatment.*

An essential feature in the treatment of the hysterical child is to recognise the type of mother one has to deal with. Very often she is highly neurotic and unwittingly does her best to foster the "functional" defect from which her child is suffering. Separation from home influences is always desirable, and is more easily obtained among patients of the hospital class. Gentle but firm persuasion that the loss of function will soon disappear will effect recovery in most cases. Massage, passive manipulations, and the faradic current are useful accessory aids. Many cases make a sudden and spontaneous recovery, especially when the patient has been placed in new surroundings. In overcoming contractures splints are to be avoided, as their presence only exaggerates the importance of the complaint in the patient's mind. Drugs are seldom necessary, but bromides and the tinctures of valerian and asafœtida may be employed in small doses, especially as they are antispasmodics and may possibly exercise a beneficial influence upon the unstable nervous system. The symptoms of hysteria are for the most part readily cured in children, as they are usually of a more simple character than those met with in the adult. Firmness, assurance of success, and the inspiring of confidence in the patient's mind are the most potent means the physician has in dispelling the manifestations of hysteria.

A word must be said on the question of the value of psycho-analysis as a form of treatment. While not denying that success may be achieved by this means in adolescent and adult patients, yet the employment of psycho-analysis in children is neither desirable nor necessary. The least contentious argument against its use is that the child's mind, and especially that of the hysterical child, is not sufficiently developed to reason formally.

The struggle, however, is not over when the hysterical paraplegia, let us say, has been overcome. An effort should be made to modify the routine of the child's daily life that recurrences may be avoided. A return to the home surroundings and over-zealous attentions of a neurotic parent will often lead to a renewal of hysterical symptoms. The nature of the trouble should be explained to the parents, and, if possible, their coöperation acquired with a view to avoiding an excess of attention being given to each childish complaint. Regular habits, open-air exercise, and the acquisition of interests or hobbies of a healthy nature should be encouraged. Excitements and over-fatigue should be shunned. The diet should be simple and liberal, and any physical ailments underlying the hysterical symptoms must receive attention. Trouble taken in training the child to keep its emotions within control and to exercise its will-power is well expended.

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# Special Articles.

## PROCEEDINGS OF THE ROYAL COMMISSION ON NATIONAL HEALTH INSURANCE.*

*(Continued from p. 1356, Dec. 26th, 1935.)*

### *Conclusion of Sir Walter Kinnear's Evidence.*

### (Q. 23648–23820.)

AMONGST other matters dealt with by Sir Walter Kinnear, Controller of the Insurance Department of the Ministry of Health, in the concluding part of his evidence was the question of continuing to give exempt persons medical benefit in return for the employers' contributions in respect of them. The witness said that he would regret to see such persons deprived of medical benefit, and he thought that employers would regard it as only right that their contributions should be applied in the interests of the health of their employees. He thought that the income limit for exempt persons who should be required to make their own arrangements for medical benefit should be raised from £160 to £250 so as to bring them into line with the limit adopted for voluntary contributors and with that for the exception of non-manual workers from insurance.

With regard to the additional benefits which societies can at present provide out of their surpluses and which are specified in the Act under 18 separate heads, Sir Walter Kinnear said that medical treatment for the dependants of the insured could not suitably be dealt with as an additional benefit, but should be faced as a problem affecting the whole insured population. He also suggested that certain other additional benefits, such as those which provide for the payment of pensions or superannuation allowances and the payment of contributions to superannuation funds, should be eliminated as being available to only a minority of the members of a society at the expense of the general body. Another suggestion supported by the witness was that if societies wanted to pay as an additional benefit sickness benefit from some date other than the fourth day (the normal date) they should only be allowed to do so as from the first day.

With regard to suggestions made to the Commission that payment of cash benefits should be made in cases of partial incapacity—e.g., to tuberculous persons capable of doing only part-work—the Controller drew a distinction between cases where such work was done as part of medical treatment in an institution and those cases where the person was working for an outside employer. As to the latter he said :—

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* References to the paragraphs in the printed statements issued as appendices to the reports of the oral evidence are given thus: "App. X. 69," and references to the oral evidence thus—Q. 1369.

> The test of partial incapacity (to be graded presumably according to the degree of incapacity) would involve rather serious administrative difficulties. So far as I can voice the mind of societies on the matter, I think societies would hesitate to undertake the task, and, indeed, I think it would be a very difficult provision to administer. On the whole, therefore, I am rather inclined to think, much as we may sympathise with the proposal, that it is scarcely one that should be adopted

### *Poor-law and other Local Medical Services.*

### (App. CIV. and Q. 21025–24245.)

Mr. A. B. Maclachlan and Mr H. W. S. Francis gave evidence on behalf of the Ministry of Health with regard to various health services other than the insurance medical services. Generally speaking, they said, the spheres of the insurance medical service and the maternity and child welfare service were mutually exclusive, and they indicated what was necessary to secure proper coördination between the two services There was overlapping between the Poor-law and other local services, both in the case of maternity and child welfare, and in regard to tuberculosis. The stigma supposed to attach to Poor-law treatment was steadily decreasing in force in every class of case. As to coöperation between general practitioners and tuberculosis officers, the witnesses said :—

> It is not claimed that fully satisfactory coördination has yet been attained in all parts of the country Much depends on the personality of the tuberculosis officer and his relations with the practitioners in the particular district, and there will probably always be opposition in some quarters to the use of set forms as a means of collaboration. There is evidence, however, that the respective functions of the tuberculosis dispensary and of the insurance practitioners are gradually coming to be better understood ; and that the dispensaries are tending to adhere more closely to their proper rôle as centres for consultation, expert examination, special treatment, &c.

On the question of destitute sick persons having free choice of doctor, the reply was that such a service would tend to be extremely costly ; it would be very difficult to limit the liability of the local authority to sick persons who were in fact destitute, and a service ought not to be provided at the public cost without public responsibility for its quality.

As to free choice generally in the case of a public medical service, it was said :—

> The principle of free choice would be retained under a capitation system and within limits it would be possible even with a salaried system in urban areas In many rural areas there is practically no free choice now, and the position would not be materially changed, whatever system was adopted, on the institution of a public medical service

On the subject of administration of unified medical services, the Ministry representatives said that the consultative council on local health administration had expressed strong opposition to the appointment of an ad hoc independent body for the purpose of administering health services. The council had recommended —

> (a) That the county borough councils should be the local health authorities for county boroughs and should be required to submit schemes to the Ministry of Health providing for the inclusion under one authority of all existing health services ; (b) that while it would be desirable to correlate all health services within the area of each administrative county, it would be undesirable that all health services within that area should be administered by one authority

### *Further Scottish Evidence.*

### (App. CV. and Q. 24210–24307.)

Sir James Leishman and Mr. G. W. Wight said that they were, in the main essentials, in agreement with the evidence given by the Ministry of Health representatives With regard to extended services, they thought that dental treatment and convalescent care could not at present be added because the funds available were not sufficient.

> We would very greatly value aids to diagnosis, second opinions, electrical treatment, massage and so on, and we would greatly value such a measure of finance as would enable us to help the voluntary hospitals in Scotland if they are to continue to be an integral part of the medical machine.

Discussion with surgeons and physicians had established the view that an extension of medical benefit was to be preferred immediately to dental treatment, the importance of which, however, was not minimised. The cost of the former on the lines indicated was about 3s per annum per insured person, but dental treatment would cost about 7s. 6d With regard to Poor-law beds, Sir James Leishman said that the handing over of these to the local authority would not, in Scotland, very materially lighten the burden, because there are far fewer beds than people think, and any excess may be in places where the beds are not wanted.

### *Sir William Glyn-Jones on the Future of Insurance Committees.*

### (Q 24308–21532 and App. CVI.)

Sir William Glyn Jones, who for many years was chairman of the Middlesex Insurance Committee and had also been chairman of the National Association of Insurance Committees, gave his opinion, which was opposed to that of the National Association, that while insurance committees fulfilled a very useful purpose in the initiation and early years of the insurance scheme, the time had now come when, owing to a variety of causes, their powers and duties should be transferred to the larger local authorities. He said that neither the arrangements with the doctors nor those with the pharmacists have ever been in the hands of the insurance committees. His view was that the administration of medical benefit had become almost entirely routine and office work, which, he said incidentally, was carried out most efficiently by the existing staff, who would undoubtedly have to be absorbed by any local authority taking over the arrangements. As regards the lack of material requiring the considered judgment of the Committee, the witness said that the average length of time of a committee meeting for the Middlesex Insurance Committee in the last two years would be about a quarter of an hour at each of the 12 meetings. He pointed out that the work in connexion with tuberculosis which was originally performed by insurance committees, and which did afford some opportunity for real exercise of judgment, had inevitably had to be handed over to the local health authority The question of transfer of functions of insurance committees fell, said the witness, within the second part of the Terms of Reference of the Royal Commission on Local Government, which is : "To investigate the relations between the several local authorities and generally to make recommendations as to their constitution, areas, and functions."

### *National Confederation of Employers' Organisations.*

### (Q. 21533–21813 and App. CVII.)

Mr J Forbes Watson and Mr J A. Gregorson gave evidence on behalf of this confederation, which, they said, represented the views of employers of about half the insured population. The purpose of their evidence was to show that the cost of the various social services was more than the industry of this country can continue to bear and immeasurably greater than that which the industry of any other country is called upon to bear ; that the existing cost of the health insurance service is out of perspective in relation to the cost of the other social services, that the existing system of health insurance is over-financed, and that an immediate and substantial reduction in the present rate of health insurance contributions can be effected while still retaining the system on an actuarial basis and providing the benefits which it contemplated. While concurring in the view that the money spent on health insurance improves the health of the worker, they thought it quite a matter of speculation whether the expenditure was repaid by the greater efficiency, wage-earning capacity, and general contentment of the workers. The first consideration was the fullest possible measure of employment, and if more money was being taken out of industry than was essential for the existing statutory benefits, the view of the employers was that this was harmful to industry and therefore to the workers. They were not prepared to say by exactly how much the contributions could be reduced, but thought that the Government actuary might be a little more optimistic in his views, and in any case they suggested that the burden would be more equitably distributed if the taxpayer paid a higher share, and the employer, as such, a smaller share as the counting of heads of the numbers employed did not give the most equitable distribution of the burden.

In previous articles the proceedings of the Commission were reported under the following headings: Introductory Note; The Scope of the Insurance Scheme (see THE LANCET, Jan. 31st, 1925, pp. 247–8); The Provision of Medical Benefit (Feb. 7th, pp. 301–3; Feb. 14th, pp. 355–6; Feb. 21st, pp. 403–5); Financial Provisions of the Act (Feb. 28th, pp. 451–7); Medical Certification and the Regional Medical Staff (March 7th, pp. 508–9); The Approved Societies and the Money Benefits (March 14th, pp. 564–5; March 21st, pp. 623–4); Evidence of the Hearts of Oak Society (March 28th, pp. 677–9); Evidence of the National Conference of Industrial Assurance Approved Societies and of the Manchester Unity Approved Society (April 4th, pp. 731–3); Evidence of Independent Order of Rechabites, of Rational Association Friendly Society, and of Miners' Societies (April 11th, pp. 784–6); April 18th, p. 830; Evidence of Mr. Alban Gordon (April 18th, pp. 839–40); Evidence of Joint Committee of Approved Societies, of Stock Exchange and Lloyds' Health Insurance Societies, and of Group of Catholic Approved Societies (April 25th, pp. 889–91); Evidence of the National Insurance Beneficent Society (May 2nd, pp. 943–4); Evidence of the British Medical Association (May 9th, pp. 993–5); Evidence of the British Dental Association and other Dental Organisations (May 16th, pp. 1044–6); Evidence of the Insurance Committees (May 23rd, pp. 1097–8); Evidence of Various Approved Societies (May 30th, pp. 1135–6); Evidence of the British Medical Association (June 6th, pp. 1184–6; June 13th, pp. 1248–50; June 20th, pp. 1315–6); Evidence of other Medical Bodies (June 20th, p. 1316; June 27th, p. 1348); Individual Evidence (June 27th, p. 1348); Medical Services in the Factory, Ministry of Health Inquiry Room, Evidence of National Sailors' and Firemen's Union and of Loyal Order of Ancient Shepherds (July 4th, p. 36); Evidence of Friendly Societies' Medical Alliance, South Wales and Monmouthshire Alliance of Medical Aid Societies, Friendly Societies' Medical Officers' Union, Association of Approved Societies, Standing Committee of Scottish Insured Women, and Society of Medical Officers of Health (July 11th, pp. 86–8); Evidence of the British Hospitals Association, the Sheffield Joint Hospitals Council, and the Middlesex Hospital (July 25th, pp. 181–2); Evidence of Opticians' Associations (August 1st, pp. 224–6); Evidence of Council of British Ophthalmologists, of Ophthalmic Benefit Committee, of Chemists, and of Drug Store Proprietors (August 15th, pp. 348–50); Evidence of Chartered Society of Massage and Medical Gymnastics, of the Ivory Cross, of Scottish Panel Chemists, Practice among Highland Crofters, and of National Farmers' Union of Scotland (August 22nd, pp. 402–3); Evidence of Nursing and other Women's Organisations (Sept. 5th, pp. 519–20); Views of Trade-Unions, Evidence of Approved Societies (Sept. 19th, pp. 618–9); Evidence of Joint Tuberculosis Council, Cambridgeshire Tuberculosis After-Care Association, London County Council on Treatment of Tuberculosis, British Social Hygiene Council, and London Insurance Committee (Oct. 3rd, pp. 722–3); Evidence of Society of Apothecaries of London, East of Scotland Dentists' Panel, Association of Poor-law Unions, Association of Parish Councils of Scotland, and of Mr. W. J. Braithwaite (Oct. 17th, pp. 828–9); Evidence of National Council of Agriculture, as to Casual Employees of Councils and Delay in Paying Sickness Benefit, of National Insurance Audit Department, Chartered Accountants of Scotland, Department of Economics (Cambridge), the Actuarial Basis of the Act, and of the Government Actuary (Nov. 7th, pp. 985–7); Provision of Extended Medical and Allied Services, Specialist and Consultant Services, Treatment of Dependants, Income Limit of Manual Workers, and Hospital Provision (Nov. 28th, pp. 1123–4); Official Evidence (Dec. 12th, pp. 1247–8); Evidence as to Question of Proof of Unemployment, and of Sir Walter Kinnear (Dec. 26th, pp. 1355–6).

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# THE GENERAL MEDICAL COUNCIL.

## MEMORANDUM AS TO THE CONSTITUTION, FUNCTIONS, AND PROCEDURE.

BY THE REGISTRAR.

THERE is so much misconception at the present moment in regard to the General Medical Council, not only amongst journalists and the public, but amongst members of the medical profession themselves, that it seems advisable to give accurate information on the subject, in order that it may be more widely known how the Council is composed, what are its duties, and how these are carried out. What follows may be found in the documents prefixed to the Medical Register, in the published minutes and standing orders of the Council, in the public addresses of the President, and in Harper's "Legal Decisions upon the Medical and Dentists Acts" (Constable and Co.).

### *Constitution.*

The Council was constituted under the Medical Act, 1858, and its composition was somewhat altered by the Act of 1886. It now consists of 18 members appointed by the universities in the United Kingdom having medical faculties; of 9 members appointed by the medical corporations, such as the Royal Colleges of Physicians and Surgeons; of 5 members appointed by His Majesty in Council; and of 6 members directly elected by members of the profession as a whole—a total of 38. To these are added 3 dentists who are members of the Dental Board and are appointed for dental business. The universities may appoint either medical men or laymen; generally it is not the medical faculty of the university that appoints the member, but the academic governing body, whatever that may be. In Cambridge, for example, he is elected by the members of the Senate, in the same way as the representatives in Parliament. The representatives of the medical corporations must be members of these bodies, and consequently must be registered practitioners. The representatives nominated by His Majesty in Council are generally appointed for special reasons, relating to departments of the public medical service. For instance, the chief medical officers of the public health departments in England, Scotland, and Ireland have been or are among them; the medical editor of the British Pharmacopœia, 1914, was recently appointed by the Crown with reference to his special knowledge of this department; for many years before the formation of the Dental Board, Sir Charles Tomes was appointed to represent dentistry; Sir Francis Champneys, the chairman of the Central Midwives' Board for England, was appointed soon after that body came into being, when the rules of the Board became subject to the approval of the Council; and so on. The direct representatives are practitioners elected, four from England, one from Scotland, and one from Ireland, by ballot of all the members of the profession having registered addresses in these countries respectively. The nominees of the Privy Council and the direct representatives of the profession are appointed for five years. The representatives of the universities and medical corporations may be appointed for five years or less.

It will thus be observed that the 18 members appointed by the universities, and the five members appointed by His Majesty in Council, may all be laymen; but so far no laymen have been appointed. As will be seen later, the functions of the Council are largely concerned with medical education, and consequently the universities have found it expedient to appoint members of their body conversant with this subject, and the Privy Council have found it desirable to appoint persons having special knowledge of certain subjects of public importance, which might not otherwise be represented.

It is important that the constitution of the Council should not vary too quickly, because the Council meets only twice a year, and its executive committee only three or four times It naturally takes some time for members to become acquainted with their duties Moreover, it is important that members should have some knowledge of precedents in regard *to education and to judicial decisions And again*, when applications are received from practitioners whose names have been erased from the Register for their restoration thereto, it is desirable that there should be members present who were in attendance when the case was originally heard, and therefore have the circumstances in their personal recollection.

### *Functions*

Sins of commission—more often *sins* of omission—are freely laid to the Council's account, of which, from its very nature and constitution, it cannot be otherwise than guiltless It is reprimanded for doing what the law says it *shall* do It is bitterly reproached for leaving *undone what the law gives it neither* power nor means to do It is spoken of at one time as the ' *Parliament of the profession,* ' yet it has no authority to legislate for anybody, and it cannot make even a by law for any but its own proceedings At another time it is scornfully described as a doctors' trade-union " , yet it cannot legally levy an annual subscription, *or say a word on the matter* of rates of pay, or hours of work, or disputes with employers, or theories of practice ; it offers no pecuniary benefits or strike-pay ; and it *can* be sued in the courts like any *other* corporation. It exists, in fact, for the protection of the public, not of the profession

The Council is, in fact, neither a parliament for making professional laws nor a union for protecting professional interests

When the Council was *created* nearly 70 years ago, the declared purpose of the legislature was not to promote the welfare of professional men or professional corporations—it was not to put down quackery, or even to advance medical science. The object in view was simply the interest of the public The preamble of the Act of 1858 consists of two lines only :—

> Whereas it is *expedient that* persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners ; Be it therefore enacted.

The preamble, as will be seen recognises two kinds of practitioners : the *qualified* " and the ' unqualified." Up to that time (1858) no easily understood line was drawn between the two, and when the public desired to make a choice, they were frequently at a loss The Act set up machinery for, as it were, ' hall marking " the qualified practitioner, so that he might easily be recognised when his services were required But the public were *left free* then, as they are free now, to seek ' medical aid ' from the unqualified practitioner if they like And the unqualified practitioner was left free then, as he is free *now, to practise for* gain among those who choose to employ and pay him He was forbidden, under penalties, to pretend that he was qualified, by *taking* a title he did not possess ; he might not use the courts for the recovery of his charges ; he could not give a valid certificate of sickness or death , *and now* by the Regulations *made under* the Dangerous Drugs Act he cannot prescribe certain dangerous drugs, like cocaine or morphine ; but except for these and a few other not *very inconvenient* disabilities, he was untouched by the law.

On the other hand the ' qualified " men, as a set-off to their new legal status and official recognition were subjected *to a new* central control, educational and disciplinary They obtained *no monopoly* of practice among the public in general They were afforded no special ' protection *against* the competition, not always scrupulous or insignificant, of the uncontrolled *unqualified* practitioner

The qualified practitioners might fairly have claimed that it would be good *for* the public, as well as for themselves, if monopoly of practice, and protection against the competition of the untrained, had been conferred upon them In other countries, and in other parts of the King's dominions, the restriction of practice to the qualified is with general consent and approval enforced by law There, *any* unqualified person who habitually and for gain practises or holds *himself out as practising* any *branch of medicine or* surgery is liable to severe penalties In this country, indeed the practice of dentistry and the practice of midwifery have been by law restricted to qualified persons But in these days it requires some resolute ignoring of the *signs* of the times to believe that, in this free country, legislation restricting the practice of *medicine* and *surgery* to qualified persons only is either probable or possible in the near future

In one significant respect, however, the Council is empowered to *protect* " the *aspirant to qualification*—not against the competition of the unqualified, *but against the possible action* of the licensing bodies in restricting his freedom when qualified. Section 23 of the Medical Act, 1858, reads thus —

> 23 *Privy Council may prohibit attempts to impose restriction as to any theory of medicine or surgery by Bodies entitled to grant certificates.*—*In case it shall appear to the General* Council that an attempt has been made by any body, entitled under this *Act to grant qualifications to impose* upon any candidate offering himself for examination an obligation *to adopt or refrain from adopting the practice* of any particular theory of medicine or surgery as *a* test or condition *of admitting him to examination or of granting* a certificate it shall be lawful for the said Council to represent the same *to His Majesty's Most Honourable Privy* Council and the said Privy Council may thereupon issue an injunction to such body so *acting, directing* them to desist from such practice ; and in the event of their not complying therewith then to order that such body shall cease to have the power of conferring any right to be registered under this Act so long as they shall continue such *practice*.

Once a *practitioner* has been trained and tested in the knowledge essential for public safety, he may adopt any theory " of medicine or surgery in which he honestly believes.

The instrument which Parliament set up for the purpose of marking the *distinction between qualified* and unqualified persons is called the Medical Register And the *making and* keeping of this Register is entrusted to the Medical Council. On the Register are placed the names of those who have passed certain tests of professional fitness These are called registered practitioners, and these alone the law declares to be duly or legally qualified The Council *has to see* that the tests of professional fitness *actually applied* by the examining bodies *to aspirants for* registration are sufficient " The tests must ensure that all *those who pass them* possess ' the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery ' The Council has also to see that no registered person who by crime or misconduct *has* become unworthy of the legal status which registration confers shall remain on the Register In other words, the two great functions which the Council in the public interest discharges are, first, to prevent the unfit from gaining access to the Register ; and, secondly, *to* remove the unworthy from it Except as to a few subsidiary matters such as the preparation and issue of the British *Pharmacopœia*, the control of diplomas in public health, the *scrutiny of the* midwives rules and the like, all its powers and all its work in relation to the *medical* profession have *reference to* these two functions It is a council of education and a board of registration, under the supervision of the Privy Council, which may direct it *to amend its* errors, if any, *or supersede* it if it persists in them.

The performance by the Council of its duties in regard to education are not *at present* in question, and it is therefore not necessary to enlarge upon this aspect of its work ; but it has been necessary to set down the foregoing in order to show how large a part of its duties are connected with education, and why the members elected by the universities and appointed by the Crown have hitherto been members of the medical profession rather than laymen.

in the view that the money spent on health insurance improves the health of the worker, they thought it quite a matter of speculation whether the expenditure was repaid by the greater efficiency, wage-earning capacity, and general contentment of the workers. The first consideration was the fullest possible measure of employment, and if more money was being taken out of industry than was essential for the existing statutory benefits, the view of the employers was that this was harmful to industry and therefore to the workers. They were not prepared to say by exactly how much the contributions could be reduced, but thought that the Government actuary might be a little more optimistic in his views, and in any case they suggested that the burden would be more equitably distributed if the taxpayer paid a higher share, and the employer, as such, a smaller share as the counting of heads of the numbers employed did not give the most equitable distribution of the burden.

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> "Whereas it is expedient that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners: *Be it therefore enacted*. . . ."

The preamble, as will be seen, recognises two kinds of practitioners: the "qualified" and the "unqualified." Up to that time (1858) no easily-understood line was drawn between the two, and when the public desired to make a choice, they were frequently at a loss. The Act set up machinery for, as it were, "hall marking" the qualified practitioner, so that he might easily be recognised when his services were required. But the public were left free then, as they are free now, to seek "medical aid" from the unqualified practitioner if they like. And the unqualified practitioner was left free then, as he is free now, to practise for gain among those who choose to employ and pay him. He was forbidden, under penalties, to pretend that he was qualified, by taking a title he did not possess; he might not use the courts for the recovery of his charges; he could not give a valid certificate of sickness or death; and now by the Regulations made under the Dangerous Drugs Act he cannot prescribe certain dangerous drugs, like cocaine or morphine; but except for these and a few other not very inconvenient disabilities, he was untouched by the law.

On the other hand, the "qualified" men, as a set-off to their new legal status and official recognition, were subjected to a new central control, educational and disciplinary. They obtained no monopoly of practice among the public in general. They were afforded no special "protection" against the competition, not always scrupulous or insignificant, of the uncontrolled unqualified practitioner.

The qualified practitioners might fairly have claimed that it would be good for the public, as well as for themselves, if monopoly of practice, and protection against the competition of the untrained, had been conferred upon them. In other countries, and in other parts of the King's dominions, the restriction of practice to the qualified is with general consent and approval enforced by law. There, any unqualified person who habitually and for gain practises or holds himself out as practising any branch of medicine or surgery is liable to severe penalties. In this country, indeed, the practice of dentistry and the practice of midwifery have been by law restricted to qualified persons. But in these days it requires some resolute ignoring of the signs of the times to believe that, in this free country, legislation restricting the practice of medicine and surgery to qualified persons only is either probable or possible in the near future.

In one significant respect, however, the Council is empowered to "protect" the aspirant to qualification—not against the competition of the unqualified, but against the possible action of the licensing bodies in restricting his freedom when qualified. Section 23 of the Medical Act, 1858, reads thus:—

> "23. *Privy Council may prohibit attempts to impose restriction as to any theory of medicine or surgery by Bodies entitled to grant certificates.*—In case it shall appear to the General Council that an attempt has been made by any body, entitled under this Act to grant qualifications, to impose upon any candidate offering himself for examination an obligation to adopt or refrain from adopting the practice of any particular theory of medicine or surgery, as a test or condition of admitting him to examination or of granting a certificate, it shall be lawful for the said Council to represent the same to His Majesty's Most Honourable Privy Council, and the said Privy Council may thereupon issue an injunction to such body so acting, directing them to desist from such practice; and in the event of their not complying therewith, then to order that such body shall cease to have the power of conferring any right to be registered under this Act so long as they shall continue such practice."

Once a practitioner has been trained and tested in the knowledge essential for public safety, he may adopt any "theory" of medicine or surgery in which he honestly believes.

The instrument which Parliament set up for the purpose of marking the distinction between qualified and unqualified persons is called the Medical Register. And the making and keeping of this Register is entrusted to the Medical Council. On the Register are placed the names of those who have passed certain tests of professional fitness. These are called registered practitioners, and these alone the law declares to be duly or legally qualified. The Council has to see that the tests of professional fitness actually applied by the examining bodies to aspirants for registration are "sufficient." The tests must ensure that all those who pass them possess "the knowledge and skill requisite for the efficient practice of medicine, surgery, and midwifery." The Council has also to see that no registered person, who by crime or misconduct has become unworthy of the legal status which registration confers, shall remain on the Register. In other words, the two great functions which the Council in the public interest discharges are, first, to prevent the unfit from gaining access to the Register; and, secondly, to remove the unworthy from it. Except as to a few subsidiary matters, such as the preparation and issue of the British Pharmacopœia, the control of diplomas in public health, the scrutiny of the midwives' rules, and the like, all its powers and all its work in relation to the medical profession have reference to these two functions. It is a council of education and a board of registration, under the supervision of the Privy Council, which may direct it to amend its errors, if any, or supersede it if it persists in them.

The performance by the Council of its duties in regard to education are not at present in question, and it is therefore not necessary to enlarge upon this aspect of its work; but it has been necessary to set down the foregoing in order to show how large a part of its duties are connected with education, and why the members elected by the universities and appointed by the Crown have hitherto been members of the medical profession rather than laymen.

The Medical Council is also a Board of registration. In fulfilment of this function, partly by the force of necessity, and partly in virtue of the interpretation of the law by judges, it has become a professional court of justice, a domestic forum for the trial and determination of grave charges brought against registered practitioners in their professional capacity. By successive judicial decisions of the High Court and Court of Appeal, it has been laid down that in its procedure the Council, sitting as a tribunal, must as nearly as possible follow the forms and rules customary in other courts. But it has no authority to compel the attendance of witnesses, to administer oaths, or to call for the production of documents. It has only one judgment to give when a charge of misconduct is proved to its satisfaction—namely, "guilty of infamous conduct in a professional respect"; and only one sentence when judgment is given—namely, "erasure from the Register." From this sentence and judgment, given after proper inquiry and without malice, the High Court of Justice has pronounced that there is no appeal. In the earlier years of the Council's life, its decisions were frequently called in question before the higher courts of law. The results were on the whole fortunate, for while its actual findings as a professional tribunal were never reversed, the judgments delivered on these appeals not only defined, but in effect prescribed, the jurisdiction of the Council. They laid down its procedure, they interpreted broadly the meagre language of the Statute, and they settled beyond dispute the finality of its judicial decisions in all causes within its competence.

All the Act says is :—

> "If any registered medical practitioner shall be convicted in England or Ireland of any Felony or Misdemeanour, or in Scotland of any Crime or Offence, or shall after due inquiry be judged by the General Council to have been guilty of infamous conduct in any professional respect, the General Council may, if they see fit, direct the Registrar to erase the name of such medical practitioner from the Register."

In 1863 the Lord Chief Justice and his colleagues of the Queen's Bench laid it down that this clause

> "makes the Medical Council sole judges of whether a medical practitioner has been guilty of infamous conduct in a professional respect; and this Court has no more power to review their decision than they would have . . . of determining whether the facts had justified a conviction for felony or misdemeanour under the first branch of the section. . . . The Council is the tribunal to whom the Legislature has left the decision, as being the best judges in the matter, and this Court cannot interfere."

In another appeal Lord Justice Bowen declared that, provided "due inquiry" had been made by the Council—

> "the jurisdiction of the domestic tribunal, which has been clothed by the Legislature with the duty of discipline in respect of a great profession, must be left untouched by Courts of Law."

Referring to the language of the Statute, Lord Justice Fry added :—

> "'Inquiry,' and 'judgment,' and 'guilt' are all words which express and which are relevant to a proper form of judicial proceedings, and, therefore, although this body proceeds by different rules of evidence from those on which Courts of Law proceed, I cannot for a moment doubt that the Council were proceeding judicially, nor can I help adding that the manner in which the Council has proceeded on this inquiry, as on all other inquiries, shows that the Council are fully aware that they are performing judicial duties, and endeavour evidently to perform them in a very admirable manner."

These and like judgments settled the jurisdiction and the procedure of the Council sitting as a tribunal. The meaning and scope of the statutory verdict of the Council—"guilty of infamous conduct in a professional respect"—were given by the definition of the Court of Appeal in 1892.

> "If it is shown that a medical man, in the pursuit of his profession, has done something with regard to it which would be reasonably regarded as disgraceful or dishonourable by his professional brethren of good repute and competency, then it is open to the Council to say that he has been guilty of 'infamous conduct in a professional respect.'"

The words, "infamous conduct," in fact, constitute a technical legal expression, defined by the Lords Justices to mean conduct "disgraceful or dishonourable" in a qualified professional man acting as such.

### *Procedure.*

It will now be convenient to consider the way in which the Council carries out the duties imposed upon it under Section 29 of the Act, quoted above. It will be seen that the inquiries take place under two heads—viz., those relating to convictions, and those relating to "infamous conduct." To deal with all such cases, the Council has set up a special committee of five, which, assisted by the judicial assessor and the solicitor, acts the part of a grand jury, and considers whether there is prima facie evidence calling for a formal inquiry by the Council, or whether the circumstances suggest that a letter of warning may suitably be sent, or whether in the absence of relevant evidence no further action is necessary.

With regard to convictions, the Council, by the direction of the Home Office in England, and the corresponding authorities in Scotland and Ireland, receives from the police all over the kingdom reports of convictions of medical practitioners for any offence whatsoever. Some of these are trivial, such, for instance, as having the number-plate of a motor-car unlighted, or exceeding the speed limit. In these cases the Council, as a rule, takes no action beyond recording the fact of the conviction. Other cases may be those of convictions for drunkenness, and unless this conviction is for an offence committed when in attendance on a patient, or (say) when in charge of a motor-car, it is usual to issue a warning to the convicted practitioner. But should further convictions of the same sort be reported, the committee may think that they indicate a habit of intemperance which might be dangerous to the practitioner as a professional man and to the patients under his charge; in this case it might be decided that for the protection of the public the practitioner should be summoned to appear before the Council. There are other convictions of a still more serious nature, such as those of felony, in which, obviously, the Council ought forthwith to consider the matter in relation to the practitioner's professional status, and to the good repute of the Register.

If an allegation of "infamous conduct" is received, the Standing Orders, which are published by Messrs. Constable and Co., prescribe that the complaint must be formulated in writing, stating the grounds of complaint and accompanied by one or more statutory declarations as to the facts alleged. The practitioner, if the complaint is relevant to his profession, is then asked to give such explanation of the matter in writing as he may think fit, and the complaint and the answer thereto are brought before the committee. If, in their opinion, a prima facie case has been made out to justify an inquiry by the Council, the practitioner is in due course summoned to appear. In cases in which a practitioner has been under the censure of a judicial or other competent authority in relation to his professional character, as the result, for instance, of an inquiry into professional conduct held under the National Insurance Acts, or of a trial in the civil courts, statutory declarations by the authority in question are not required; but the depositions, judgments, and other relevant documents, are officially supplied, and in other respects the same procedure is followed by the Council.

When the inquiry takes place, the complainant or complainants may be represented by counsel or solicitor, or in the event of there being no personal complainant or lawyer representing him, as for instance in the case of a criminal conviction, the facts may for convenience be laid before the Council by its own solicitor, who formally proves the conviction and informs the Council of the circumstances as reported. The practitioner is entitled to be, and as a rule is, present; and he also may be represented by counsel or solicitor. The hearing is in public, witnesses are called and examined and cross-examined, as in the ordinary courts of law. Questions may also be put to witnesses by members through the chair. The judicial assessor is always present to assist the Council in regard to any points of law or procedure which may arise, and if there is a conflict of evidence, he, as a rule, sums up and indicates the legal weight to be attached to each part, in the same way as a judge sums up for a jury When a criminal conviction has been proved, it has to be accepted as a fact, and the Council does not retry" the charge which led to the conviction, any more than, according to Lord Chief Justice Cockburn, the High Court would do; but it is willing to hear anything that the accused practitioner may have to say, or may desire to be said on his behalf, in regard to the actual gravity of the offence of which he was found guilty, and in particular to its relevance to his profession, as affecting his position on the Medical Register. At the conclusion of the hearing the public and the parties withdraw, including the Council's solicitor, if he has been called on to lay the actual facts before it, and the Council then deliberates upon the case in camera. It decides first, whether sufficient evidence has been produced to enable it to come to a decision on the facts alleged; secondly, whether the conviction or facts alleged in the charge have been proved to its satisfaction; thirdly, whether it will proceed to judgment at once, or postpone it to a future date; and fourthly, if it does not postpone judgment, whether, on the facts proved, the name of the practitioner is to be erased on the ground that he has been convicted of a grave offence, or is guilty of "infamous conduct in a professional respect." A full shorthand note of the whole proceedings is taken, and copies are accessible if they are required, either by the Council itself or by any competent authority

The practice of suspending judgment to a later date is one which has been gradually evolved by the Council. The Act gives one penalty only—viz., that of erasure—but there are cases in which, when a practitioner has, for instance, been repeatedly convicted of drunkenness and promises amendment, the Council suspends judgment in order that he may have time to show that his word is good, and in this event the practitioner is summoned to appear in 6 or 12 months' time and to produce evidence as to his good conduct in the interval. At the adjourned hearing, if the evidence of conduct is satisfactory, the Council, although it may have found the conviction or the facts, as the case may be, to have been proved, does not deem it necessary to proceed to judgment or to direct the erasure of the name from the Register, and the accused practitioner is "discharged with a caution." The minutes of the Council record many examples of such "cautions."

The Act gives the Council no explicit power of suspension, nor, in view of the fact that practice by unregistered persons is not prohibited, would mere suspension from the Register be of any practical value to him. A practitioner's name is either on or off the Register. If it is on the Register, he is entitled to all the privileges of registered persons, and these could not be suspended in the case of an individual without the actual erasure of his name. He must have all or none.

A practitioner whose name has been erased may, under the conditions set forth in the Standing Orders, apply to have it restored, and, if in the opinion of the Council it will not be prejudicial to the public interest to grant his request, his name is thereupon replaced upon the Register It may here be remarked parenthetically that the Council has no jurisdiction over the licensing bodies in regard to the withdrawal, under their by-laws, of their qualification from one of their own members or licentiates. Certain bodies, for instance many of the universities, have no statutory power to withdraw their degrees once they have been conferred. Others, such as the Royal Colleges of Physicians and Surgeons, have power, independently of any action by the Council, under their own by laws to suspend or expel their members for offences involving a breach of their particular regulations or of the practitioner's declaration on admission. When a practitioner applies for restoration it is essential, in order to conform to the law, that he should actually be in possession of at least one qualification, for restoration is in effect re-registration. If he is not, the Council has no power to restore his name only, for he is, in fact, unqualified. He must therefore first apply to the bodies whose qualifications he formerly held, asking to have at least one qualification restored to him In this matter the licensing bodies have necessarily complete autonomy. They are not bound either to await or to follow a decision by the Council. It is the custom of the Council from time to time to issue warning notices to practitioners in regard to points of professional conduct, and it has been the practice not to issue such a warning until a number of cases of a particular form of misconduct have been brought before the Council, so that it is clear that a state of things is becoming prevalent which is contrary to the public interest. For instance, in certain parts of the country it was formerly customary for a qualified man in large general practice to employ a number of unqualified persons as his assistants. These, as they acquired a certain amount of rule-of-thumb experience, were gradually entrusted more and more with the sole care of patients. The practitioner sometimes did not see the patient until it was time to sign a death certificate in order to avert an inquest. Individual cases of gross abuse were one by one brought before the Council and condemned. Others, in which serious forms of evasion of the law were attempted, followed upon these; and as they arose these ingenuities were severally met and dealt with At length it was made clear to those who clung to the bad tradition that their practice was too dangerous to be profitable, and that the "unqualified assistant" must go. Having accumulated a sufficient body of experience regarding the mischief which had to be remedied, the Council summed up all in a "warning notice" respecting the professional offence of "covering." All qualified practitioners were notified that the abuse of their qualifications, whereby an unqualified person was enabled to mislead the public and to treat patients as if he were qualified, under "cover" of his qualified employer or employee, who might sign for him his medical certificates, and otherwise enable him to evade the law, was in its nature fraudulent and dangerous to the public health, and that such an offence rendered them liable to be judged guilty of "infamous conduct." The result was remarkable. Unqualified assistants were dismissed wholesale, often no doubt at the cost of some hardship to individuals, but in the end for the good of the public and the profession alike. The evil, from being almost endemic in particular districts, became sporadic, and has now almost passed away. Other forms of "covering," such as those by which uncertified women were enabled to practise as midwives, and other unqualified practitioners were enabled to procure medical certificates from the qualified, were one by one dealt with as they arose. Private "interests" must not prevail against the interest of the public.

More recently the practice of advertising, whether directly or indirectly, for the purpose of obtaining patients or promoting a practitioner's professional advantage, was brought before the Council in connexion with some particularly flagrant cases; and each case had to be judged on its merits—or demerits. The character of the advertising varied. In some cases articles were inserted in the press, either by the practitioner himself or through the medium of complaisant journalists, affirming directly or by implication the superior methods of treatment of a practitioner, who desired for gain to attract patients to himself at the cost of his self respect and the respect of others. If this procedure were unchecked, the practitioner who had fewest scruples, in praising himself and his wares, would reach the widest public, and extend his practice without any guarantee that his merits were in fact superior. It was discreditable to his profession, and contrary to the public interest, that a qualified man should thus adopt the methods of the unqualified self-advertising and self-praising practitioner of medicine or surgery. Accordingly the Council warned the profession against conduct of that kind, and, where a formal and duly attested complaint of such conduct is received, it holds an inquiry into the alleged facts. When the inquiry elicits evidence of deliberate bad faith, or of wilful exploitation of the public for gain, the offence of "unprofessional advertising" is naturally held to be aggravated.

To sum up, what has been written in regard to the disciplinary procedure of the Council, it is clear, first, that the Council does not itself initiate proceedings, does not itself employ detective methods, and does not itself act as prosecutor, against registered practitioners. It is a statutory court of justice, and takes action only in cases of criminal conviction, or of judicial censure, officially brought to its notice, or in cases of formal complaints, supported by prima facie evidence, brought before it by responsible persons or bodies. Secondly, its judicial procedure is based as nearly as may be on that obtaining in the Law Courts. When a charge is made the practitioner has every possible opportunity of defending himself; and should his name be erased from the Register, it may after a lapse of time be restored thereto, if that can be done with safety to the public. And thirdly, it is now unusual for complaints involving a charge of "infamous conduct" to be lodged in regard to any matter on which the Council has not already issued a general warning to the profession and to the public.

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

### *Proposed Insurance Legislation.*

A PREVIOUS letter outlined proposed French legislation on obligatory insurance against sickness, old age, and unemployment. The French medical profession has not been favourably impressed with the social insurance in vogue in England and in Alsace and Lorraine. Objection is taken to the frequent demands for needless consultations and the insufficient payment of physicians. After making all necessary allowances, the introducer of the new French law assigns 1·20 per cent. of the basal workers' salary of 5000 francs per annum to cover pharmaceutical, hospital, and medical expenses. Jayle finds that of the 60 francs thus forthcoming the physician is to receive 27 to 30 francs for seven days' medical service, and considers that no country provides adequate compensation for the physician, although the sums paid in England are twice those proposed in France. Insurance practice must remain imperfect and poor unless physicians unite to exact a payment which they consider suitable. If their demands are not made unitedly it may be that clinics will multiply, but their medical personnel will certainly be inferior. The result will be overloading of the free public hospital service, and the proposed law will not ameliorate present conditions. If physicians' unions, or *syndicats*, support what are considered just medical demands, the difficulty will be to compromise between these demands and the funds really available from the insurance treasuries. The question is very difficult in all its aspects.

### *Tuberculosis in Bakehouses.*

In discussing night-work in bakehouses the advocates of reform and their opponents have advanced all sorts of medical arguments, based for the most part on statistics which are positively fantastic. Some have said that tuberculosis affects 70 per cent. of workers in bakehouses, whereas others have estimated the rate at only 5 per 1000. MM. Jacques Parisot and G. Richard have recently put before the Académie de Médecine some definite statistics which are particularly interesting now that the Senate is discussing a Bill for the suppression of night-work. From information collected in social hygiene dispensaries from 1921 to 1925 they have come to the conclusion that the mortality from tuberculosis amongst workers in bakehouses at Nancy works out at 10 per 1000, whilst the mortality for the rest of the population of the town varies between 2·5 and 3 per 1000. It is instructive to compare these figures with those obtained in an allied trade—the pastry-cooks—in which there is said to be no mortality and a morbidity of less than 1 per cent. The reason for the difference seems to be that bakehouse work lies outside present social regulations (night-work, no regular weekly day off), and that baking is done in unhygienic conditions which are often deplorable. These factors favour the onset of tuberculosis amongst the workers. A significant fact is that two-thirds of the people found suffering from tuberculosis —many of them with extensive lesions and tubercle bacilli in the sputum—go on with their work as usual. Apart from any possible risk of contaminating bread before it is cooked, there is obviously a certain danger from the inevitable soiling of bread as it is taken out of the oven into a dusty atmosphere saturated with bacilli. Mr. Cazeneuve, of Lyons, has indicated another point of importance to the trade which has received insufficient attention. It is all very well, he says, to take account of the suppression of night-work and the eight-hour day, but it must not be forgotten that the substitution of mechanical kneading for hand kneading would be a great improvement—an improvement as much in the interests of the worker as in that of the consumer.

### *Fitness of Railway Employees.*

A report on the physical examination of railway employees has been presented by Dr. Guillain, professor of neurology at the Salpêtrière. Guillain suggests that all French railway systems require a standard physical examination for the admission of employees to the service. Each employee should be examined every five years to the age of 50, and every three years after that age; vision should be examined every two years; cardiac patients should not be accepted for service; and employees addicted to alcohol should be discharged.

### *New Technique in the Treatment of Lupus.*

Dr. Aurégan, of Lannion, Brittany, has just presented to the Société de Dermatologie et Syphilographie a method for treating lupus which he has been testing since 1904. The method is new mainly in its special technique, but Prof. Sabouraud declares that it has been proved of great value. The lesions are anæsthetised and deeply curetted, and the wound is filled with an ample supply of very finely powdered potassium permangante crystals. The crust formed by the permanganate is removed in 15 to 20 days, cure being perfect in ideal cases. Uncured traces remaining may be eliminated by repetition of the treatment. All cases thus treated by Aurégan have remained cured and no case has needed more than three applications of the method, which is commended for its sureness, simplicity, and inexpensiveness.

### *Pain in the Hip.*

According to Dr. Calot, of Berck-sur-Mer, the cause of pain in the hip, at all ages, is very often entirely misunderstood. When it comes on in young children it is put down to coxalgia; in adults and old people it is often attributed to sciatica, lumbago, rheumatism, rheumatoid arthritis, and the rest. This observer, however, claims to have demonstrated that 90 times out of 100 above the age of 20, and in nearly 50 per cent. of cases below that age, the functional disturbances noticed are really due to a slight congenital abnormality of the form and adjustment of the two bones of the hip—abnormalities which have been present without sign or symptoms for 10, 20, or 60 years. They remain latent so long as there is no excessive strain, but if functional equilibrium is destroyed at any age by the effects of fatigue or a fall or some debilitating disease symptoms such as pain and limping are the result.

Clinical and radiographical examination make it possible, he says, to identify the real cause, which is, of course, the first step towards rational treatment.

### A New Anti-Tuberculosis Vaccine.

A vaccine presented by M. Grimberg to the Société de Médecine de Paris seems useful in the treatment of fistulous lesions. It is said to be colloidal and prepared by treating bacilli with very fine iron filings and the electric current. A two years' trial in some of the Paris hospitals appears to indicate that it merits further test.

Prof. Tiffeneau has been unanimously chosen to succeed Prof. Richaud in the chair of pharmacology at the Paris Faculté de Médecine.

Prof. Sébileau, oto-rhino-laryngologist at the Hôpital Lariboisière, has been made Commander in the Légion d'Honneur.

## UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

### Death-rate in the United States.

THE national death-rate in the United States has been estimated by the Commerce Department of the Government, at 11·9, on the basis of figures for 1924, as compared with 12·8 in 1923, 11·8 in 1922, and 11·6 in 1921. The figures cover the entire death registration area of the country, which accounts for about 88 per cent. of the population. Heart disease was the chief cause of death in the general registration area in 1924, accounting for 170,671 fatalities. This was a slight increase over the figures for the previous year. Cancer also took a heavier toll in 1924 than in 1923, 91,941 deaths being reported. Tuberculosis, on the other hand, showed a decline, the deaths from this disease numbering 89,724 in 1924 as compared with 90,782 in 1923. Cerebral hæmorrhage, pneumonia, and nephritis were other important factors in the mortality figures, while of the 75,745 accidental deaths motor-cars alone caused 15,528, compared with 14,411 in 1923. Both suicides and murders increased; there were 12,001 suicides in 1924 as against 11,257 in 1923, and 8120 murders as against 7878. In another statistical study the department has reported a further increase in deaths due to motor-car accidents in the principal cities of the United States. The total for the four weeks ending Dec. 5th last was 624. In New York proper, in 1925, street accidents caused 392 out of a total of 590 violent deaths, which includes 106 deaths by shooting. According to the reports of the traffic court the magistrates dealt with 82,252 cases, and 238 persons were charged with driving motor-cars when intoxicated.

### The Dreams of Children.

At the meeting of the American Psychological Association on Dec. 31st last Miss Phyllis Blanchard gave some results of tabulating the dreams of 300 children. Of the children examined 189 were able to tell their dreams, and of these the large majority were between the ages of 6 and 14 years. The intelligence of the group was fairly normal. The dreams were grouped according to the relative frequency of the subjects and according to motivation. The greatest number of dreams, 15·3 per cent., concerned the children's parents, and this number represented more than one-fourth of the dreamers. Next in frequency came dreams about animals with 11·3 per cent., then dreams of fear, of play, of falling, of robbers, and of death. As for motivation, 16·3 per cent. of the dreams seemed to represent wish fulfilments and 40·6 per cent. were apparently caused by fear; while 9·5 per cent. were a result of mental conflicts. Moving pictures were recorded as the cause in 6·3 per cent., and only 5·7 per cent. were attributed to sex.

### The Span of Life.

At a recent meeting of the American Sociological Society Dr. Harnell Hart, of Bryn Mawr College, predicted that the average length of life of human beings born in A.D. 2000 would be 100 years. Dr. Hart pointed out that the average expectation of life increased from 21 years in 1850 to over 50 years in 1910. Since 1850, he said, the average gain per decade had been three and two-tenth years, a rate of gain which would be maintained and even accelerated. In A.D. 2000 he thought the span would be lengthening at about the rate of eight years per decade, and therefore the expectation of life at birth would have reached about 104 years. This meant that the average person would live to be 104, and obviously many persons must live to be 200 or older in order to maintain such an average.

## IRELAND.

(FROM OUR OWN CORRESPONDENT.)

### The Medical Register.

Mr. James Burke, Minister of Local Government and Public Health, moved last week the first reading of the Medical Bill. It is proposed to continue the authority of the General Medical Council in the Free State for a period of six months from Feb. 21st, and to give power to the Executive Council to continue it for a further period of six months if so desired. The Minister said that it was necessary to pass the Bill if the whole position of the medical profession in this country was not to go into chaos. Though at present the matter was not finally settled, he thought that they had hit upon a plan to preserve the existing rights of students in Ireland without in any way derogating from the status of the country under the Treaty. He gave no details of his plan, but it is understood that some of the medical representatives made a suggestion that a council should be established with power to regulate practice in the Free State. This would perform its duties side by side with the General Medical Council and without interference from it. By such a scheme students taking their qualifications in the Free State could put their names on either or both registers as they might think desirable. If they wished to practise in Great Britain they would, of course, enter as heretofore on the General Register.

### Vaccination in Ireland.

At a meeting of the General Council of the Royal Academy of Medicine in Ireland it was resolved that "in view of the outbreak of small-pox in certain parts of England, following on the decline of vaccination in that country, the President and Council of the Royal Academy of Medicine in Ireland, having had their attention drawn to the decline of vaccination in this country, deem it their duty to urge the necessity for vaccination of all young children, and of immediate revaccination in the case of adults who are likely to come in contact with cases of small-pox." A similar resolution was passed recently by the Council of the Irish Medical Association.

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MEDICAL TREATMENT AT SEA.—Mr. W. Pool, presiding at a meeting of the Liverpool, Bootle, Waterloo, and District War Pensions Committee on Jan. 12th, mentioned a ruling by the Ministry of Pensions in the case of an ex-Service man now employed as a seaman. The Ministry admitted that he required medical treatment, one of their own medical men having certified to that effect; but said that he could obtain it from his own panel doctor, and that this would not prevent him earning his living. They would not give him a treatment allowance. The Committee wrote asking whether it was the duty of a seaman to change his occupation when he applied for treatment. "Certainly not; the treatment can be given to him perfectly well by the doctor on board ship." The Ministry of Health were informed that, as the result of inquiries in the port, it was extremely doubtful whether shipowners or captains would employ a seaman knowing that he would have to be medically treated on board.

# Public Health Services.

## SOME ANOMALIES IN MEDICAL CERTIFICATION.

INSURANCE practitioners are sometimes in doubt of their correct course in the certification of an insured person who has been treated in hospital and who remains incapable of work on returning home. The practitioner sees the case for the first time when the patient returns home; should he give a "first" certificate or an "intermediate" or "continuation" certificate to follow on the certificates already given at the hospital? Obviously, if the insured person is not to lose two or three days sick benefit—and there is no reason why he should—*the certificate must be an* "intermediate" certificate. The case is similar to that of an insured person who changes his insurance doctor in the course of an illness. In this case the transfer may be due to the fact that the first practitioner has refused further certificates. We know of cases in which the second practitioner has given a "first" certificate under these circumstances.

Agents of some of the societies insist on a "final" certificate being given in cases of pregnancy when labour takes place. Here it is obvious that the ordinary "final" certificate cannot be used. The fact of labour taking place and the application for maternity benefit with which a signed statement of the date of the confinement must be sent is sufficient evidence of the date on which the sick benefit must cease.

Practitioners are frequently notified of their insured patients having "ceased to be insured." Where the practitioner knows that the insured person referred to is actually at work the explanation may be that the notice refers to a duplicate entry which has been discovered and which is being cancelled. But in other cases the approved societies in notifying the insurance committees appear to overlook the wide limit which was granted to insured persons by the 1920 Act. Under this provision the insured person is entitled to medical benefit for 12 months after the end of the year in which he falls into arrears. This provision was meant to prevent the insured person from being disentitled to medical attendance by reason of a period of temporary unemployment. So many cards are asked for by the Insurance Committee for this reason that the relationship between the practitioner and his insured patient is unnecessarily interfered with to the annoyance of both parties.

A number of insurance practitioners would like to have an answer to the following question: When an insured person is said to be in arrears to the amount of, say, 5*s.*, why is it necessary to stop an equivalent sum of his sickness benefit every week?

## PORT SANITARY AUTHORITY.

The annual report of the Newport (Mon.) Port Sanitary Authority by the medical officer of health, Dr. J. Howard-Jones, tells of but few cases of infectious disease seen during 1924. It is desirable, he states, that suspected ships should be moored and examined in Barry Roads, but this procedure has not yet been sanctioned by the Ministry of Health. Little meat or other provision imported was found unfit for human consumption. There came to notice 101 cases of venereal disease in British subjects and 74 in foreign seamen.

*Baits, traps, ferrets, and fumigation* accounted for 6583 rats, some 70 per cent. of which were females; 97 *per cent. of the rats on board ship* were black, whereas 99 per cent. of those about the docks were brown. None were found infected by plague. Less than six were found dead per hundred baits distributed, and in seven ships fumigated the average number of bodies found was 74.

Inspection was made of 2428 ships, of which 407 were found defective and had notices issued to them calling for the abatement of nuisances. These included dirty forcastles, 147; foul or defective w.c.'s, 141; defective lighting or ventilation, 118; accumulation of refuse on deck, 89; defective stoves and heating apparatus, 72; food-lockers, none, or defective, or dirty, 32; leaking decks, 23; living spaces verminous, 18; defective cable casings or hawse pipes, 18; stagnant water on or under floors of living spaces, 14; water impure or storage dirty or defective, 10; insufficient table space or seating, 8; w.c.'s used as storerooms, 6; *defective bulkheads*, 5. Of dirty or verminous beds, 1269 were destroyed. Those general *and particular remarks* of the report which concern the sanitary condition of ships and the diseases of seamen have already been commented upon in our columns.[1]

## INFECTIOUS DISEASE IN *ENGLAND AND WALES* DURING THE WEEK ENDED JAN. 23RD, 1926.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 362 (last week 341); scarlet fever, 1818 (last week 1717); diphtheria, 1005; enteric fever, 30; pneumonia, 1103 (last week 1337); *puerperal fever*, 51; cerebro-spinal fever, 9; acute poliomyelitis, 8; acute polio-encephalitis, 1; encephalitis *lethargica*, 31 *(last week* 67); *continued fever*, 1; *dysentery*, 8; ophthalmia neonatorum, 113. There were no cases of *cholera, plague*, or *typhus notified during the week.*

Of the 362 cases of small-pox, 26 (last week 60) were reported from the county of Derby, 19 of them from Derby C.B.; 175 (last week 143) from the county of Durham, 47 of these from Gateshead C.B., 9 from South Shields C.B., and the remainder from widely scattered urban and rural districts and including 44 from Blaydon, 20 from Chester-le-Street R.D., and 23 from Easington R.D.; 1 from the county of Lancaster; 1 from Lincoln (parts of Lindsey); 53 from the county of Northumberland (last week 21), including 6 from Newcastle-on-Tyne and 20 from Ashington; 8 from the county of Nottingham (last week 16); 6 from the East Riding of Yorkshire (Kingston-upon-Hull); and 92 from the West Riding (last week 90), of which 70 (*last week* 77) occurred in Rawmarsh and 2 in Leeds.

*Deaths.*—In the aggregate of great towns, including London, there was 1 death from enteric fever, none from small-pox, 100 (63) from measles, 5 (3) from scarlet fever, 66 (4) from whooping-cough, 50 (16) from diphtheria, 57 (10) from *diarrhœa* and *enteritis under* 2 *years of age*, and 87 (11) from influenza. The figures in parentheses are those for London *itself. The recent* diminution in the number of deaths from influenza is not maintained, the figures for the last three weeks, working backwards, being 87, 81, and 114.

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

Surg. Lt.-Comdr. L. F. Strugnell to be Surg. Comdr.

The *following appointments have been made*:—Surg. Comdrs.: D. P. H. Pearson to the *Champion*; A. G. Malcolm *to the Pembroke, addl., for* R.N. Barracks, Chatham, and as specialist in ophthalmology; and T. E. Blunt to the *Spenser, temp.* Surg. Lt.-Comdrs: W. I. Gerrard to the *Egmont*, addl., and to the *Egmont* for R.N. Hospl., Malta, and as specialist in bacteriology; K. A. I. Mackenzie to the *Britannia*, for R.N. Sick Quarters, Dartmouth; J. F. Haynes to the *Vivid*, addl., for Devonport Dockyard; O. J. M. Kerrigan, S. R. Johnston, J. T. Wylie, J. F. Ainley, F. G. Hunt, H. Hurst, J. R. Brennan, and R. W. Nesbitt to the *President*, addl., for *five months'* course of instruction.

Surg. Lt. (short service).—P. J. A. The O'Rourke transferred to the permanent list.

## ROYAL ARMY MEDICAL CORPS.

Maj. A. L. Otway is restd. *to the* estabt.

Majs. C. T. Edmunds (granted the rank of Lt.-Col.) and A. S. Williams ret. on retd. pay.

Maj. B. G. Patch to be Lt.-Col., vice Lt.-Col. J. H. Robinson to retd. pay.

Capt. S. E. Elphick to be Temp. Capt. and temporarily relinquishes the rank of Capt.

Temp. Capt. A. Wilson relinquishes his commn. and retains the rank of Capt.

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[1] THE LANCET, 1925, ii., 1347.

### TERRITORIAL ARMY.

Capt. A. J. Gibson to be Maj.
Lts. T. C. MacKenzie and J. Cohen to be Capts.
Lt. D. G. Coutts (late T.A. Res. of Off.) to be Lt.
2nd Lt. A. G. Ogilvie (late R. Tank Corps) to be Lt.

## ROYAL AIR FORCE.

L. I. Hyder is granted a short service commission as a Flying Officer for three years on the Active List.

Flying Officer S. G. Gilmore is promoted to the rank of Flight Lt.

Flying Officer T. Glynn is transferred to the Reserve, Class D.3.

### AUXILIARY AIR FORCE.

J. D. Driberg to be Flight Lt., No. 601 (County of London) (Bombing) Squadron.

## INDIAN MEDICAL SERVICE.

The King has approved the retirement of Lt.-Cols. J H. Hugo and R. McL. Dalziel.

## DEATHS IN THE SERVICES.

Inspector-General of Hospitals and Fleets, Thomas Browne, R.N., whose death occurred at the age of 81 on Jan. 20th at Weymouth, graduated M.D. R.U.I. with honours and the gold medal in 1863. In the same year he obtained the L.R.C.S. Edin. and joined the Royal Navy as assistant surgeon in 1863. He was promoted to staff surgeon in 1870, to fleet surgeon in 1883, Deputy Inspector-General in 1803, and Inspector-General in 1809, in which year he retired. For some 14 years he served at the R.N. Hospital, Yarmouth, where he was very popular with the patients and their relations. From 1804 to 1807 he was in charge of the R.N. Hospital, Bermuda, and from 1807 to 1800 second in charge of the R.N. Hospital, Plymouth. A keen golfer, he assisted in the formation of the Great Yarmouth Club, of which he was the first honorary secretary. He married Miss Agnes Robertson Dall, daughter of James Dall, J.P., of North Berwick, in 1871, who survives him with a son and five daughters.

Lt.-Col. William Wippell Pope, C.M.G., R.A.M.C. retd., who died on Jan. 31st at Bournemouth, aged 68, received his first commission in 1881 and served with the Egyptian Expedition of the following year, and was at the battle of Tel-el-Kebir (medal with bronze star). In 1888 he took part in the operations in Zululand and served during the operations on the N.W. Frontier of India in 1807–08. He was also with the Tirah Expedition Force (medal with clasp), and served in the South African War, and was present at the defence of Ladysmith (Queen's medal with clasp). He reached the rank of Lieut.-Colonel in 1001 and retired two years later.

# Correspondence.

"Audi alteram partem."

## THYROID GLAND AND CALCIUM THERAPY.

*To the Editor of* THE LANCET.

SIR,—In connexion with Dr. Geikie Cobb's letter on the above subject, and its application to the treatment of chilblains, may I invite the opinions not only of my dermatological colleagues, but also of other medical men, as to the value of calcium salts alone, or of a combination of these with parathyroid gland, in the treatment of patients with a feeble peripheral circulation and chilblains? Most of my patients who come to me with chilblains have already taken calcium lactate over a long period without striking benefit; it is true that many of them have taken it after meals, whereas, as Dr. Arthur Luff pointed out, it should be given about an hour before, but, even when this error is corrected, the results in my experience are seldom good. As for parathyroid gland, in spite of all the claims that have been made *for it* and of a conscientious personal *trial* in cases of chilblain-circulation, varicose and other chronic ulcers, and urticaria, I have never convinced myself that it had any beneficial effect whatever when given by the mouth.

Chilblains are admittedly far commoner in the female than in the male sex, and occur chiefly, but not exclusively, in girls and women belonging to a certain type, which deserves a monograph to itself. This type is well known to dermatologists *and is seen* commonly in girlhood, although it can be recognised at a later age, when, however, its manifestations are, as a rule, less obvious. Its subjects are usually fat and œdematous-looking and their legs are, perhaps, their most characteristic feature. These are coarse and unshapely and blue from vascular stasis, most marked in the lowest third, which is often icy cold to the touch; there is hyperkeratosis at the pilo-sebaceous orifices—*keratosis pilaris*—around each of which is seen a bluish halo of stasis; the lanugo hairs are often long and coarse, and the skin as a whole is harsh, feels thickened, and cannot be pinched up from the underlying subcutaneous tissue. The same vascular stasis and the *keratosis pilaris* are also seen on the extensor surfaces of the upper arm. Dr. H. MacCormac and Dr. Parkes Weber recently drew attention to these patients in describing "a peculiar erythema of the legs," and it has been suggested that the wearing of thin or openwork stockings *is an* aggravating cause of the vascular stasis. Where this is most evident—viz., on the postero-external surface of the lowest third—actual chilblains often occur, and also, if the patient be tubercular, the nodules of Bazin's erythema induratum; in fact, it is doubtful if the latter is ever seen except in patients of this type. I agree, however, with Dr. Guy that in them nodules similar to those of erythema induratum *may occur* from embolism of bacteria other than the tubercle bacillus—e.g., *B. coli* and streptococci.

The ætiological factors responsible for the production of this type afford plenty of scope for speculation. That there is a disturbance of the endocrine-sympathetic system would appear likely. Thus, as has been said, females are far more often affected than males, and my experience is that in most patients there are menstrual irregularities; menstruation is usually late in beginning, often irregular and scanty, and not uncommonly several periods are missed altogether. Heredity is undoubtedly a factor of importance; frequently the history is volunteered that the mother was similarly affected when a girl, and I have been several times consulted by two or three sisters for the same condition. I have thought that psoriasis is commoner in girls of this type than can be explained by mere coincidence; when it does occur, the psoriasis patches predominate on the legs below the knee and to a less extent on the extensor surface of the upper arm, the body often being completely free, and it is common in these situations for the eruption to be follicular, the mouths of the pilo-sebaceous follicles, already the site of *keratosis pilaris*, being encircled by a little halo of psoriasis. As regards the calcium metabolism of these patients Dr. W. W. Payne kindly made investigations of the blood-calcium for me in *a few cases, but the* results were inconstant; no striking diminution either of the total or ionised calcium was found in any case, and in some the figures were above normal.

I have found the oral administration of iodine in large doses, either alone or in combination with *thyroid* gland, far more efficacious than anything else in these patients, not only as regards the acro*asphyxia* and chilblains, but also as regards their general health and sense of *physical fitness.* I *am, of* course, aware that Sir Arbuthnot Lane would attribute the clinical picture I have briefly sketched entirely to intestinal auto-intoxication; it is true that in the few cases that have been completely investigated very marked delay in the colon was found, and very possibly auto-toxæmia may be an important factor, but it cannot, I think, be the *only* one.

I am, Sir, yours faithfully,

Devonshire place, W., Feb. 1st, 1926. H. W. BARBER.

## THYROID GLAND AND CALCIUM THERAPY.

*To the Editor of* THE LANCET.

SIR,—With regard to chilblains Dr. Cobb uses some work of Dr. Vines and mine to strengthen an argument which would have had more force if his major premise had been correct—namely, that chilblains are associated with calcium deficiency. We have shown that many diseases are associated with Ca. deficiency, but we have expressly stated that the cases of chilblains had normal blood calcium. Two only were examined, but these were sufficient. I do not know who originally stated that chilblains had Ca. deficiency; I can only assume that the blood of a person suffering from ulcerating chilblains was examined. In that case there might have been Ca. deficiency due to some septic source which would render the chilblain liable to break down. In the same way many people have varicose veins, but they do not all get them thrombosed or ulcerated. But if there is a source of sepsis in the system the blood will become Ca. deficient and the vein may inflame or break down into an ulcer. In such a case giving parathyroid will overcome the deficiency and the lesion will heal. There is no necessity to add calcium; there is always the little required in the food; it is only a question of its proper assimilation and ionisation. Chilblains are very deceptive things to treat; under any remedy a spell of warmer weather will improve them and the remedy is given the credit. Personally I was sure, before Dr. Vines had found out for me that chilblains *per se* were not Ca. deficient, that the administration of calcium salts did no good, and I have never tried parathyroid. On the other hand, thyroid has seemed to me to lessen the congestion. But some years ago a consul home for a holiday from the Caucasus asked me to give him some cacodylate of soda injections for his chilblains, an Armenian doctor having previously cured him with that remedy. I have always used it since with sure and happy results. The effect lasts for some months, and given as a prophylactic at the beginning of the winter, the patient is free for the year. I give three injections, each of gr. ¾ made up in ampoules, at intervals of about two days.

I am, Sir, yours faithfully,
W. R. GROVE.

St. Ives, Huntingdonshire, Feb. 1st, 1926.

## PERCHLORIDE OF MERCURY IN ACUTE BACTERIAL INFECTIONS.

*To the Editor of* THE LANCET.

SIR,—With reference to the article by Prof. Dudgeon in THE LANCET of Jan. 23rd, I venture to send you a note on similar work which we have been carrying out at the West London Hospital, St. Mary Abbots Hospital, and other places, and which we had intended to publish fully when sufficient cases had been collected to make it of value. Dr. Dudgeon has been able to deal with a large number of cases, with results that are as satisfactory as we would have anticipated from our experience.

Two cases of pyæmia were shown at the West London Medico-Chirurgical Society in 1924 and 1925 which had been treated with intravenous injections of perchloride of mercury with immediate and satisfactory results, inasmuch as the blood cultures became sterile at once and there was rapid recovery. In the second case panophthalmitis had necessitated the excision of the eyeball before treatment was started. Other injections had been given in both these cases previously with no effect. These cases appear in the *West London Medical Journal* in the reports of the Proceedings. Since then we have used the same injections in various infective conditions but our conclusions are not yet drawn. In several cases of subacute infective arthritis the condition appeared to subside with recovery, in others there was no result.

This winter several cases of pneumonia seemed to improve directly after injections, and the resident medical officers at the hospital have formed a high opinion of its value in pneumonia, but I am of opinion that it is in the so-called influenzal types that it is of more value. In the true lobar type due to the pneumococcus I am not convinced of its efficacy. But then in streptococcal infections in general, and particularly in infective endocarditis, we have been disappointed, and it is most encouraging to read the report of Dr. Dudgeon's success in a case of septicæmia associated with a hæmolytic streptococcus. In acute rheumatism there has been no improvement after several injections.

It is difficult to attempt to explain the action of so small a dose as 1/32 to 1/16 gr. of perchloride when diluted in the mass of body blood, but an interesting point appeared to come out of blood cultures made by Dr. Elsworthy on a case of infective endocarditis. Though the disease was not affected by the injections he noted that after each there was a distinct delay in the growth in the culture flasks. We have had no ill-effects of the injections, which have been given in 1 c.cm. of saline.

I am, Sir, yours faithfully,
JULIUS BURNFORD.

Devonshire-place, W., Feb. 1st, 1926.

## OCCUPATIONAL THERAPY.

*To the Editor of* THE LANCET.

SIR,—When I was young my little friends and I were wont to play a game in which, during a hunt after a hidden object, we were told we were getting "warmer and warmer" the nearer we approached the desired goal. It has struck me since that life is composed almost entirely of such a game, with this difference—that even if one knows for certain where the object is hidden, very rarely does one dare to shout "warmer and warmer" the nearer someone approaches it.

The discussion on Occupational Therapy by the Society of Superintendents of Tuberculosis Institutions (THE LANCET, Jan. 23rd, p. 182), which unfortunately I was unable to attend, seems to me so well to illustrate the game of our childhood, that I hope I may be forgiven if I make bold, even at the risk of being thought indiscreet, to shout "warmer and warmer" to my colleagues, for it would be hard to imagine a meeting which could pour forth such approbation of village settlements for the tuberculous, such an appreciation of the principles underlying them, without recognising the end of the quest.

I cannot, therefore, refrain from adding a few remarks which may help in the elucidation of a difficult problem. In the first place, it is well to have clearly fixed in our mind the kind of object for which we are searching. When, for example, Dr. J. E. Chapman states that occupational therapy signifies a means of returning the patient "to his ordinary conditions of life mentally and bodily sound," he is enunciating a fundamental principle, and when he adds, "but employers did not want them after discharge, and they had no notion of the commercial side of business and so failed alone," he is adding the next layer of bricks to the structure. Finally we come to the culminating point: "Many of them broke down more because of the *difficulties and worries of employment*"—that is where we are brought face to face with the economic problem. And this is emphasised by Lieut.-Colonel J. R. Lord, who remarks that "a patient would take more interest in his work if it were *useful and remunerative* . . . . Often their old occupation was gone and they had to face a new world and conquer it as best they could."

That an occupation should be useful will not suffice. Dr. Jane Walker gives a long list of admirably useful occupations which, with the utmost enthusiasm, she has tried at Nayland, and which she says have failed, but—and this is the significant fact—"when the Government scheme for ex-Service tuberculous men was instituted" various trades were commenced, and these "were still going on very successfully."

Why? Because those men were not financially embarrassed; their economic problems had been solved by the pension.

A *similar principle is recognised* by Dr. Esther Carling when she informs us how successful "the employment of ex-patients in institutions" has turned out to be; that is, employment under sheltered conditions—the germ of the village settlement—employment at an occupation which is already known to the ex-patient, or one nearly allied to it. The economic problem having been solved, success *is* attained. The sheltered environment, such as that in a village settlement, is emphasised by Dr. H. O. Blanford, who remarks that "one of the chief obstacles to the employment of ex-patients was the opposition *of the healthy employees.*" *Quite so*; such opposition does not occur in sheltered and specialised communities. Dr. W. C. Fowler gets very "hot" in the search when he says "the patient should be told the definite time he was likely to be kept in bed"; *that is, he should not be left in* uncertainty as to his economic future. Add to this the information that his economic salvation is assured, and the object of our search will be found to be in the industrial village settlement for tuberculosis.

I am, Sir, yours faithfully,

P. C. VARRIER-JONES.

Cambridgeshire Tuberculosis Colony, Papworth Hall,
Cambridge, Jan. 26th, 1926.

## CHARING CROSS HOSPITAL INSTITUTE OF PATHOLOGY.

*To the Editor of* THE LANCET.

SIR,—I should like to reply to the letter of the Secretary-Superintendent of the Hospital for Epilepsy and Paralysis published in your last issue.

He quite correctly points out that I have changed my mind about the propriety of placing the pathological resources of a large hospital at the disposal of the general practitioner. The Charing Cross Hospital Institute of Pathology—of which I have the honour to be Director—has so frequently been asked to perform tests for persons who have been unable to pay ordinary fees that I believe such an extension is more than justifiable. Furthermore, I am convinced that there is need for direct coöperation between the clinician and the pathologist, and as pointed out in our pamphlet the practitioner is welcomed and encouraged to come to these laboratories with any difficulty that he may experience and for information on any point which he may desire. This, in my opinion, is the soundest basis of clinical laboratory work, and for that class which this institute especially has in mind can best be carried out at one of those great hospitals to which medical men in this country look for guidance in such matters.

I can only regret the letter to which I once appended my name, although I cannot, of course, speak for the other signatories. If my previous letter in any way hampered the scheme of the Hospital for Epilepsy and Paralysis, I apologise most heartily, although at that time convinced that harm might arise.

I am, Sir, yours faithfully,

A. PINEY,
Director of the Charing Cross Hospital
Institute of Pathology.

Feb. 1st, 1926.

## CHEMOTHERAPY OF SYPHILIS.

*To the Editor of* THE LANCET.

SIR,—In a recent communication[1] to your columns and an address[2] to the Royal Society of Medicine on Jan. 21st, Dr. C. Levaditi, of the Pasteur Institute, Paris, has given an account of his experiments in the use of stovarsol in syphilis and other spirillary infections. He maintains that the drug is perfectly innocuous. With the greatest deference to his large experience, I feel it may be worth while to relate the following case in which untoward results followed its use. They have led me to think that the treatment is not quite unattended by danger.

A man, aged 46, of strong physique, with a past history of specific infection, consulted me on account of some mucous patches on the dorsum of the tongue. The Wassermann reaction in the blood was positive. He was given several intravenous injections of salvarsan which cleared up the patches. Recently there developed one or two slight ulcers on the tongue and I decided to try the effect of stovarsol, administering it in the usual way per os in tablet form. The dose was 0·25 g. (4 gr.), which is the quantity usually advised. This was taken about one hour after breakfast. Within two hours he was taken violently ill. Severe cramp-like pains developed over the abdomen and lower limbs, and especially in the calf muscles. There was much vomiting for two hours and also diarrhœa. The patient suffered from great prostration and collapse, and the pulse-rate rose to 138 with clammy sweating. At one stage he looked as though he would not recover, but after about three hours he began to pick up, though he remained in a weak state for some days.

Copious draughts of warm water were given to dilute the contents of the stomach, and also a ferric hydrate mixture. The symptoms were ominously suggestive of arsenical poisoning.

It is possible that stovarsol may produce these symptoms after food, as Dr. Levaditi recommends that it be taken before breakfast. It would be interesting to know if others have had a similar experience. It seems clear, however, from this case that stovarsol requires some discretion in its use.

I am, Sir, yours faithfully,

Hull, Feb. 1st, 1926. J. R. O'BRIEN.

## MANIPULATIVE TREATMENT.

*To the Editor of* THE LANCET.

SIR,—The discussion at the Medical Society of London (THE LANCET, Jan. 30th, p. 233) ought to be of immense service to the profession. Reading between the lines there is an admission of something seriously faulty in our system of medical education, and Mr. Elmslie goes further to show that there is also something wrong in our system of specialisation, when he remarks that "A surgeon who practically . . ." &c. (p. 221). Dr. H. A. Des Vœux speaks of the profession being on the "defensive." Though the general public recognises specialists and specialism, its main concern is with the general practitioner. Recognising that the General Medical Council controls medical education, it is naturally disappointed to find one or more of its guaranteed products to be failures, and especially when their mistakes are remedied by unrecognised and unguaranteed specialists. The General Medical Council ought to be on the *defensive* rather than members of the profession who are not on the Council.

More than half of the persons who are placed on the Register become general practitioners, yet the Council provides no training for them *as such.* As "clearing stations" they are excellent, but as real workers in the profession they are only on the threshold. A full physician or surgeon in a well-appointed hospital never leaves his beds in the sole control of his registered house physician or house surgeon.

The various specialised branches are catered for by diplomas such as those for public health, insanity, &c., but the general practitioner is thrown on the public trained only by men who have never been in general practice. When I say never I mean that few, if any, of the members of teaching hospital staffs have made a living as general practitioners, and such as there are rarely allow it, if ever, to be known. I venture to suggest that general practice is at least as much a specialty as that of a military or naval surgeon, both of whom receive special training before having charge of patients. In these days of specialism the general practitioner must be provided with a special diploma, after which it is less probable the profession will be placed on the defensive.

I am, Sir, yours faithfully,

Buxton, Jan. 31st, 1926. R. CRAWSHAW HOLT.

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[1] THE LANCET, 1925, ii., 503.

[2] THE LANCET, Jan. 30th, 1926, p. 215.

## PUBLIC MEDICAL SERVICE FOR LONDON.

*To the Editor of* THE LANCET.

SIR,—In your note on the above Service in your issue of to-day's date you state, "Administration expenses are to be met by an entrance fee of 1*s.* and a quarterly charge of 9*d.* per member. In other words, 3*s.* out of the capitation fee of 13*s.* goes to the administration account." This statement is incorrect. The entrance fee and quarterly levy are paid by the subscriber (the patient), not by the member (the doctor), therefore the payment is in addition to the 13*s.* per annum, not a deduction from it. One of the principles of the scheme is that the capitation fee for the practitioner shall be 13*s.* per annum net.

I am, Sir, yours faithfully,
C. LUTHER BATTESON,
Secretary of the Public Medical Service for London.
Staple House, Chancery-lane, W.C., Jan. 30th, 1926.

# Obituary.

## PROF. CAMILLO GOLGI.

Camillo Golgi, emeritus professor of general pathology and histology in the University of Pavia, who died on Jan. 21st, had almost reached his eighty-fifth year; yet until a short time ago he preserved to the full the lucidity of his astonishing mind. The honorary fellowship which the Royal Society of Medicine recently conferred on him proved the last of a long series of honours which came deservedly from every part of the world.

Son of a distinguished practitioner, Golgi graduated in medicine at Pavia in 1865. For some time he was a pupil of Mantegazza and Lombroso. It was not long before he became resident physician in the Home for Incurables of Abbiategrasso, which was then only a village in the province of Milan and rather remote from any centre of scientific activity. It was in Abbiategrasso, nevertheless, that Golgi wrote those early papers on the history of pellagra, the ætiology of mental alienations, the structure and development of psammomata, the changes of the lymph vessels of the brain, and the structure of the neuroglia, which made him famous and which even now can be read with great profit. In that home for incurables, where only the most primitive means of investigation were available, he discovered his chromate of silver method, the *reazione nera*, by which nerve-cells with all their processes, and the finest ramifications of those processes, are seen stained intensely black against a transparent yellow background. At a time when histological technique was in its infancy and the structure and functions of the central nervous system appeared as impenetrable mysteries, Golgi's discovery illuminated a world steeped in darkness. A first hint of the new method (the slow process) was to be found in his paper on the grey substance of the brain in 1873; the details were given more fully in a memoir in 1875, when he became extraordinary professor of histology in the University of Pavia. His rapid process was first described in a paper on the structure of medullated nerve-fibres in 1880; the bichromate and sublimate method had been published two years previously. All of them were dealt with again minutely in the last chapter of his monumental work "Sulla fina anatomia degli organi centrali del sistema nervoso," published between 1882 and 1885, and illustrated by 24 magnificent plates which were, unfortunately, much too detailed for reproduction in ordinary text-books.

By Golgi's methods the histology and physiology of the central nervous system were placed on the sound foundation on which they rest at present. Since 1873 he had observed the two types of nerve-cells with which we are now familiar and the collaterals arising from the axon of the cells of the I. type. Already, in 1874, he had described the large nerve-cells of the granule layer of the cortex cerebellæ which bear his name, and had pointed out that the so-called granules were, in fact, minute nerve-cells. In 1875 he had been able to give a first description of the structure of the olfactory bulb and to show that both the olfactory fibres and the protoplasmic processes of the mitral cells arborise within the olfactory glomeruli. In his main work he set forth definitely his fundamenta observations on the morphology and relations of nerve-cells, the central origin of nerves, the architecture of some of the cerebral convolutions, and the structure of the cortex cerebelli and hippocampal region, adding the results of fresh investigations on the morphology, vascular connexions, and histogenesis of neuroglia cells. These studies, and those on the spinal cord (1880 and 1890), led him on to describe his diffuse nervous network and to refute persistently the neurone theory which others had built on the results of his methods.

His other discoveries form a long list. Mention should at least be made of his work on sensory end-organs in tendons (1880), the course of uriniferous tubules (1889), the secretory canaliculi of the oxyntic cells of the stomach (1893), the pericellular investment and internal apparatus of nerve-cells (1898), and the neurofibrils of the superficial portions of nerve-cells (1900). Of his investigations in the field of pathology it will suffice, perhaps, to recall his epoch-making observations on malaria, and his masterly description of the morphological and biological characteristics of the parasites of tertian and quartan fever. Golgi it was who discovered their monogonic cycle of development and first showed that the beginning of the fever coincides with the sporulation phase. No wonder that his name has already become legendary among medical and science students.

## CHARLES PLUMLEY CHILDE, F.R.C.S. ENG., M.R.C.P. EDIN.,

### CONSULTING SURGEON, ROYAL PORTSMOUTH HOSPITAL.

WE regret to record the death of Mr. Charles Plumley Childe, the well-known Portsmouth surgeon, which occurred on Jan. 29th at Monte Carlo of heart failure following pneumonia.

Childe was the elder son of the late Rev. G. F. Childe, sometime professor of mathematics in the South African College and assistant astronomer of the Royal Observatory, Cape Town. He received his earlier education in South Africa and graduated in arts at the Cape of Good Hope in 1877 with honours, being Maynard Scholar and University Exhibitioner. He then entered King's College, London, where he was Warneford Scholar, and later obtained a scholarship at Magdalene College, Cambridge. He did not proceed to the medical degree but qualified in 1883 as M.R.C.S. Eng., taking the L.R.C.P. Lond. two years later. In 1892 he obtained the F.R.C.S.Eng., and a little later the M.R.C.P. Edin. His life-work was associated with Portsmouth and the district, for it is over 30 years since he began to practise there, first as a general practitioner and later as an operating surgeon. The appointment with which his work was prominently associated was that of surgeon to the Royal Portsmouth Hospital, at which institution he was for some time the chairman of the committee of management, while he was senior consulting surgeon at his death. He was also surgeon to the Hants and Isle of Wight School for the Blind, and surgeon to the Southsea Home for Children, while outside his strictly medical activities he did splendid public service for Portsmouth as a sanitarian. In particular he took a prominent share, as chairman of the health committee of the corporation, in the improvement of housing conditions and the evacuation and clearing up of slum tenements.

During the last 20 years of his life Childe devoted much attention to the incidence and manifestations of cancer, and a small book which appeared in 1907 from his pen put the problems before the public in a really valuable manner. The book was an attempt to substitute sound knowledge and hope for ignorance and despair, and the constructive views with which it closed are to-day far less speculative than they appeared when written. He wrote in the *British Medical Journal* on the operative treatment of intra-oral cancer, in the *British Journal of Surgery* upon carcinoma of the cervix uteri, and to THE LANCET he made a notable contribution upon "acute abdominal conflux." How good an all-round surgeon he was is well illustrated by the classifications employed in this paper and the indications laid down for operation. In 1923 he was elected President of the British Medical Association, when he chose for his inaugural address the subject of Environment and Health, and dwelt forcibly on the need for concentration on the prevention of disease and on strengthening of resistance by the improvement of general social conditions.

We have lost in C. P. Childe one whose general knowledge and civic qualities made him a fine representative of the profession apart from his fine qualities as a surgeon.

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## SAMUEL FLEMING, M.B., C.M. EDIN., D.P.H. CAMB.,

LIEUT.-COL., R.A.M.C., METROPOLITAN POLICE MAGISTRATE.

Samuel Fleming, whose recent death was announced, while only 60 years of age, was better known in his legal than in his medical capacity. The son of Mr. Frederick Fleming, he received his medical education at the University of Edinburgh, and after a successful career as a student graduated in 1890 as M.B., C.M., and after holding certain residential posts started as a general practitioner in Broadway, Worcestershire. From there he shortly after migrated to London and rapidly built up a practice in the Hornsey and Muswell Hill districts, becoming also a member of the district council and taking a prominent part in public affairs. The bent of his activities was further manifested when in 1897 he was called to the Bar and joined the North-Eastern Circuit. His double training he used with considerable advantage in medico-legal cases, and when he accepted the office of a metropolitan police magistrate he was in the enjoyment of considerable practice.

On the outbreak of war he joined the R.A.M.C., but his legal knowledge was promptly utilised by the authorities by his appointment as Legal Adviser and Judge Advocate to the Aldershot Command. From here he was transferred to the War Office as Legal Adviser to the Army Medical Department, being graded as D.A.D.G. in 1917 and receiving a brevet lieut.-colonelcy in 1918. After the war he was appointed Recorder of Doncaster and also became a member of the Bar Council. He resigned the Recordership on being made a police magistrate in 1921, and officiated first at Greenwich and Woolwich, being transferred last year to Lambeth. His death occurred on board ship when on a voyage to South Africa, undertaken partly to visit a married daughter, but partly in response to medical advice enjoining rest from the stress of work owing to his cardiac condition. He had, as a matter of fact, suffered from cardiac disorder for many years, though he had never allowed the disability to interfere with his career.

Dr. Fleming married in 1892 Elizabeth, the daughter of Colonel William Clare Ball, C.B., by whom he had three daughters; these and his widow surviving him.

Dr. F. J. McCann sends us the following personal tribute to his old friend:—

"Sam Fleming, for thus he was known to his many friends, was a popular medical student at Edinburgh University in the 'eighties. Endowed with a baritone voice of good range and quality he was in great demand at 'at homes,' 'kitchen concerts,' and the musical recitals which the late Sir Herbert Oakley gave when professor of music. His geniality and musical tastes formed a bond of union between us which remained unbroken for over 40 years. . . . Colonel Fleming was of medium height with a well-shapen head poised on broad shoulders. He was clean-shaven, with well-cut features. His rounded face was illuminated by greyish-blue eyes surmounted by prominent eyebrows, whilst his luxuriant hair, which in later years had become grey, added further distinction to his appearance. The genial smile and the merry twinkle in his large expressive eyes with which he greeted his friends added still further attraction to his personality. He possessed, probably more than most men, the capacity for making friends and retaining friendships, and was seen to greatest advantage when welcoming his friends at his home. Here he was ably supported by his wife, an exceptionally fine amateur pianist. But behind this geniality, this success, and this *joie de vivre* there lurked the spectre of cardiac disease. For many years he had suffered from a cardiac disorder which for a long time at least had nullified the prognostications concerning it. . . . Latterly, however, certain signs appeared which portended disaster, forcing him to slacken the pace. Attacks of cardiac pain and breathlessness on exertion caused him to realise that all was not well. A rest from work and a voyage to South America had produced a temporary amelioration, and it was thought a further holiday would be beneficial. He accordingly determined to go to South Africa to pay a visit to his daughter, but shortly after embarking on the voyage he had a severe anginal attack from which he recovered, but a few days later he succumbed to a second attack. He was buried at sea."

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## JOHN CHADWICK, M.R.C.S. ENG.

Dr. J. Chadwick, the senior medical practitioner of the Rochdale district of Lancashire, died on Jan. 25th at his house in Milnrow within six days of his seventy-first birthday. In Milnrow, where his family has lived for over 300 years, he had practised for more than half a century. The son of a medical man, he received his early education at the Rochdale Grammar School; he then entered Owens College, Manchester, and qualified L.S.A. in 1877 and M.R.C.S. in 1888. From 1884 onwards he took an active interest in the public life of Milnrow, and in 1885 was elected first chairman of the local district council. In 1900 he resigned membership of the council to become medical officer of health for the district, a position which he continued to hold up to the time of his death. As medical officer of health he was very zealous in his work, and as his reports showed, there was plenty of scope for his endeavour. He served on the Lancashire County Council from 1898 onwards and was also a county alderman. As a member of the county council he acted on the Child Welfare, Public Health, Tuberculosis, Old Age Pensions, and Midwives Act Committees, and was also representative of the council on the Lancashire Asylums Board. Dr. Chadwick's unfailing kindliness and strong, vigorous character made him much respected as a practitioner. He had a retentive memory and was an excellent story-teller, especially in the Lancashire dialect. He was interested in agriculture and keen on golf and cricket. It had been the intention of a large number of friends to make a presentation of his portrait to Dr. Chadwick on the completion of his seventy-first year, and all arrangements had been made. He is survived by his widow and one sister.

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## FRANK BOXALL, M.R.C.S. ENG., L.R.C.P. LOND.

THE death on Jan. 14th of Dr. Frank Boxall removes a familiar figure from West Sussex. Born in 1864 near Rudgwick, the village where he spent his life and his energies, son and brother himself of medical men, he was educated at University College Hospital and qualified in 1880, and after spells as obstetric assistant at his hospital and R.M.O. of St. Pancras Dispensary, he settled in Rudgwick and built up there a practice which he conducted single-handed for some 36 years, until his unexpected and rather sudden death. Throughout that period he rarely took a holiday, though he used to make time to attend, often at considerable distances and before the easy days of motors, branch or divisional meetings of the B.M.A. The most modest and unassuming of men, his life was a fine example of unselfish devotion to his patients and in accordance with the best traditions of the profession of medicine. Not only was he the friend of the countryside in sickness, in trouble, or in difficulty, but he was for some years chairman of the parish council and, ever a good churchman, churchwarden. The love and respect in which he was held was evidenced at his funeral by the crowded church, the neighbourhood of all classes mustering to pay their tribute to their trusted friend. He leaves a widow, two sons, and four daughters.

# Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on Jan. 28th, the President, Sir Humphry Rolleston, being in the chair.—The following were admitted to the Membership :—

Drs. Douglas K. Adams, George A. Allan, John F. Anderson, George V. Ashcroft, Hugh Barber, Harry Bedingfield, John A. Birrell, Ernest Bulmer, Ernest W. H. Cruickshank, Manindranath De, Henry B. F. Dixon, Daniel M. B. Evans, William M. Feldman, Gwenvron Mary Griffiths, Arthur H. Hall, John T. Ingram, Leslie M. Jennings, Frank A. Knott, Robert Knox, David Krestin, Alexander Lyall, Thottakat Bhaskara Menon, Trevor Owen, Albert E. H. Pinch, George H. Rossdale, Percy S. Selwyn-Clarke, George Simpson, Byron L. Stanton, Alexander J. H. Stobo, Selwyn E. Tanner, John T. P. Tansey, Norman B. Williamson, and Claude Wilson.

On the nomination of Council, Dr. James Collier, Dr. S. W. Wheaton, Dr. J. S. Fairbairn, and Dr. C. J. Martin were elected Councillors to take the place of Dr. W. S. Lazarus-Barlow, Sir John Broadbent, Dr. T. W. Eden, and Sir George Newman.—The President consulted the College as to the desirability of appointing an Assistant Registrar, and Dr. R. O. Moon was nominated for appointment at the next meeting.—Licences to practise were conferred upon 181 candidates (including 37 women) who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the necessary by-laws. The following are the names and medical schools of the successful candidates :—

P. W. A. Agnew, St. George's; S. A. Antoun, Birmingham; N. A. Arnold, Guy's; A. Ashworth, Liverpool; A. L. Banks, Middlesex; C. M. Barker, Univ. Coll.; L. H. Belcher, Guy's; R. J. L. Bell and S. B. Benton, St. Bart.'s; S. Bernstein and M. Bomze, Univ. Coll.; Elsie Boyton, King's Coll.; R. Broomhead, Leeds; A. Byrne-Quinn, St. Thomas's; Irene F. Callender, St. Mary's; A. L. Canby, St. Thomas's; De Lisle Carey, St. Mary's; S. Chazen, Guy's; R. Childs, St. Thomas's; J. H. Chitty, Guy's; J. H. Clapp, London; A. Clark, St. Bart.'s; G. C. W. Clarke, Sheffield; H. N. Collier, Guy's; Violet H. Comber, Univ. Coll.; R. V. Cooke, Bristol; W. F. Cooper, St. Bart.'s; A. R. Cox, Guy's; S. T. Davies, Univ. Coll.; T. W. Davies, Cardiff; T. E. Davies, St. Thomas's; Hilda C. Dean, Charing Cross; A. E. de Fonseka, Ceylon and King's Coll.; May W. de Livera, Ceylon and Royal Free; G. C. Dewes, St. George's; H. V. Dicks, St. Bart.'s; Mary G. H. Dickson, King's Coll.; Margaret H. Duncan, London; G. H. Dymond, St. Bart.'s; Elaine O. H. Earengey, Univ. Coll.; R. W. B. Ellis, St. Thomas's; D. C. M. Ettles and J. Evans, Guy's; B. Fink, Manchester; C. W. Flemming, Univ. Coll.; T. D. W. Fryer, St. Thomas's; S. W. Gabbe, Cape and St. Thomas's; S. C. Gawne, Liverpool; P. Gibbin, Cardiff; Dorothy Godden, St. Mary's; P. J. Gonsalves, Guy's; D. P. A. P. Gorham, Bristol; Agnes H. Gray, Royal Free; D. P. Gray, Middlesex; Margaret K. Green, St. Mary's; W. H. Green, Middlesex; C. R. M. Greenfield, St. Bart.'s; L. A. N. Greenway, Calcutta and King's Coll.; B. J. Griffiths, Cardiff; A. A. M. Groot, Leyden and Westminster; A. Gross and F. P. Guilfoyle, St. Bart.'s; K. H. Hadley, Melbourne and Middlesex; R. N. Hall, St. George's; C. W. Harrison, St. Bart.'s; L. Hartston, London; H. G. Harvey, St. Thomas's; J. P. Helliwell, St. Mary's; T. R. Hill, Guy's; R. L. Holt, Manchester; B. B. Hosford, St. Bart.'s; Mary H. M. Huggett, King's Coll.; N. C. Hypher, London; D. E. Iago-Jones, Cardiff and Middlesex; R. J. Isaac, St. Mary's; G. L. C. Jones, Cardiff and St. Bart.'s; T. Jones, Cardiff; J. Kahanas, Berne and London; J. A. Kerr, Birmingham; Hilda M. King, St. Mary's; R. H. Knight, St. Bart.'s; P. H. Knowles, Bristol and St. Mary's; T. P. Lalonde, Bristol; F. J. L. Lang, St. Mary's; F. W. Law, Cambridge and Middlesex; D. F. Lawson and R. L. J. Le Clezio, St. Thomas's; Margaret E. Ledger, Royal Free; Anne Theresa Leigh, Manchester; E. A. Lewis, St. George's; R. A. V. Lewys-Lloyd, St. Bart.'s; Leonora M. K. Lines, Charing Cross; T. M. Ling, St. Thomas's; Edith M. Little, Royal Free; G. F. H. McCormick, Middlesex and Univ. Coll.; G. L. M. McElligott and L. J. McGregor, St. Thomas's; Evelyn T. D. Maclagan, St. Mary's; A. J. McMillan, Middlesex; P. Malpas, Liverpool; Ruth E. Mansfield, Westminster; Mary A. Marshall, St. Mary's; I. O. Martin, Cardiff; S. R. Matthews, Middlesex; H. R. R. Mavor, St. Thomas's; W. Mayne, Guy's; S. Mellins, Middlesex; R. H. Metcalfe, St. Thomas's; G. C. Milner, London; J. Mintzman, Middlesex; F. E. Montague, St. Thomas's; P. Morton, London; M. Mundy, St. Bart.'s; D. H. P. M. Q. Mylechreest, St. Thomas's; C. B. Nicholson, Middlesex; J. R. P. Norman, Birmingham; G. F. Oakden, Cambridge and St. Thomas's; E. J. O'Keeffe, N.U.I. and London; J. E. J. Palser and C. H. Parker, London; G. E. G. Peirce, St. Mary's; H. A. Picton, Birmingham; H. P. Pieris, Middlesex; N. R. Pooler, St. Mary's; W. G. Porter, Guy's; D. C. Price, St. Bart.'s; Winifred E. Probert, Cardiff and Westminster; D. M. Pryce, St. Mary's; Muriel A. Pugh, Charing Cross; F. W. F. Purcell, Cape and St. Thomas's; Nellie L. Pyman, Charing Cross; J. H. Randall, Univ. Coll.; Marjorie D. Reddan, Royal Free; Margaret G. P. Reed, King's Coll.; H. G. St. M. Rees, Cardiff; J. L. Reeve, St. Bart.'s; A. M. Rhydderch, London; O. Richardson, St. Bart.'s; L. Roberts, Middlesex; Victoria A. Roberts, Royal Free; D. J. L. Routh and Audrey E. Russell, Univ. Coll.; J. W. Schabort, Guy's; Gitta Schewel, Westminster; F. L. G. Selby, St. Mary's; T. H. Sellors, Middlesex; D. W. Seth-Smith, St. George's; A. de M. Severne, St. Thomas's; W. D. Sheldrake, Guy's; M. Sidky and H. J. A. Simmons, Middlesex; W. S. Slater, Manchester; E. V. Slaughter, Middlesex; Beatrice G. Smith, Univ. Coll.; L. G. Smith, St. Bart.'s; A. Sourasky. Leeds; H. B. Stallard, St. Bart.'s; C. A. Stanley, St. Thomas's; B. L. Steele, Univ. Coll.; A. F. H. Stewart, Guy's; R. K. Stockbridge, Adelaide and London; Dorothy S. Tait, St. Mary's; G. M. Tanner, St Bart.'s; Constance P. Thomas, Cardiff; D. W. R. Thomas, Cardiff and Middlesex; R. Thorpe, St. George's; G. O. Tippett, St. Thomas's; R. S. Tooth, St. Bart.'s; Rose A. H. Traill, Charing Cross; R. M. Walker, Univ. Coll.; L. H. F. Walton and H. D. Weatherhead, St. Thomas's; Janet Welch and Violet M. Weston, Royal Free; E. A. White, St. Bart.'s; J. E. B. Williams, Univ. Coll.; J. H. Williams, Cardiff; H. Williamson, King's Coll.; D. B. Wilson, Cambridge and Birmingham; Jessie Wiltshire and Ada R. Winter, Univ. Coll.; J. Wiseman, Guy's; Joan Worsfold, Royal Free; and Dorothy E. Wright, Univ. Coll.

The special diplomas mentioned in the report of the Council of the Royal College of Surgeons of England were also conferred (jointly with that College) upon the candidates whose names were specified in THE LANCET of Jan. 23rd. In addition the Diploma in Ophthalmic Medicine and Surgery was conferred upon the following candidates :—

Esme V. Anderson, J. B. Baird, A. Bajaj, D. P. Billimoria, C. H. G. Blakemore, Victoria E. Brander, J. A. Browne, A. Caddy, H. R. Dive, R. R. Garden, P. N. Gokhale, G. McN. Hargreaves, K. R. Hill, A. MacRae, J. Marshall, J. N. Piplani, Portia K. Taylor, Doris Todd, and S. T. Wong.

Dr. Major Greenwood moved the following resolution :—"The College, taking note of the fact that members of the medical profession have stated in the public press that the practice of certain methods of diagnosis and treatment generally known as 'Psycho-analysis' is open to grave objections, requests the President to appoint a committee to inquire into the truth of such allegations, so far as they relate to the practice of members of the medical profession, and to report what restrictions, if any, it may be in the public interest to impose upon the use of these methods by Fellows, Members, and Licentiates of the College." This was not carried.—Sir Francis Champneys was appointed, on the nomination of the Council, as a representative of the College on the Central Midwives Board.—Dr. Drewitt was reappointed representative of the College on the Committee of Management of the Chelsea Physic Garden for four years.—Sir Thomas Barlow was reappointed a representative of the College on the Executive Committee of the Imperial Cancer Research Fund.—Dr. Arthur Shadwell was appointed a representative of the College on the Queen Victoria Jubilee Institute for Nurses.—The President announced that he had appointed Dr. F. G. Crookshank to deliver the Bradshaw Lecture for 1926, and that the Council have appointed Mr. W. F. Dearden to be Milroy Lecturer for 1927.—The resignation of Mr. Bryan Farrer as junior standing counsel to the College was received. The President nominated Mr. Dighton Pollock for election. It was directed that a letter should be sent to Mr. Bryan Farrer thanking him for services of quarter of a century.—The resignation of Sir Dyce Duckworth as Representative Governor of the University of Liverpool was received. The Council expressed their high sense of the services he has rendered. Dr. Abram was appointed in his place.—The Registrar moved for the first time that By-law 160 be amended to read as follows :—

"A list of all Fellows and Members of the College, and a list of the new licentiates and diplomates in the special branches of medicine admitted during the preceding 12 months, with their places of residence, shall be printed annually under the direction of the Censors' Board, and a copy of such lists certified under the College seal shall be sent to the registrar of the branch medical councils for England, Scotland, and Ireland."

The report of the representative of the College on the General Medical Council on the proceedings of the Council at its session held in November last was received.—Books and other donations to the Library presented during the last quarter were received and thanks returned to the donors.

The following reports from the Committee of Management, dated Dec. 23rd, 1925, were received and adopted :—

1. The Committee of Management recommend that certain universities which were removed in the year 1918 from the list of recognised places of study, and graduates of which are admissible to the Final Examination of the Board, be now reinstated in the list, as follows :—*Austria:* Graz, Innsbruck, Vienna. *Czecho-Slovakia:* Prague. *Germany:* Berlin, Bonn, Breslau, Erlangen, Freiburg, Giessen, Gottingen, Greifswald, Halle, Heidelberg, Jena, Kiel, Königsberg, Leipzig, Marburg, Munich, Tübingen, Würzburg. *Hungary:* Budapest. The Committee also recommend that the University of Hamburg be added to the list of recognised German universities.

2. The Committee of Management recommend that the following additional clauses be added in Chapter I. of the Regulations of the Examining Board in England: X. Any representation which a candidate may desire to make with regard to the conduct of his examination must be addressed to the secretary

and not, under any circumstances, to any of the examiners. XI. The Committee of Management may refuse to admit to examination or to proceed with the examination of any candidate who infringes a regulation of the Examining Board in England, or is considered by the Committee to be guilty of behaviour prejudicial to the proper management and conduct of the Examination.

3 In accordance with the conditions relating to special diplomas laid down by the Royal Colleges in April, 1920, the Committee of Management now report that they have recognised courses of instruction at the following institutions :—D.P.H. : Newport Borough Isolation Hospital (fever hospital practice). D.T.M. & H. : Royal Army Medical College (laboratory course). D.O.M.S. : Cork Eye, Ear and Throat Hospital (complete courses). D.P.M. : Bethlem Royal Hospital (neurology, pathology, and bacteriology). D.L.O. : Royal Naval Hospitals at Chatham, Haslar, and Plymouth (hospital practice only under special conditions). Norfolk and Norwich Hospital (hospital practice only).

The Comitia was constituted into an extraordinary Comitia and, on a report from the Censors' Board, it was resolved : "That Charles Bertrand Wagstaff be declared to be no longer a Licentiate of the College ; that he forfeit all the rights and privileges of a Licentiate ; and that his name be expunged from the List of Licentiates—during the pleasure of the College."

After some formal College business the President dissolved the Comitia.

**Society of Apothecaries of London.**—At recent examinations the following candidates were successful in the undermentioned subjects :—

*Surgery.*—E. W. D. Long, London Hosp. ; P. B. B. Mellows, St. Bart.'s Hosp. ; D. P. Mitra, Charing Cross Hosp. ; M. N. Nicolson, Sheffield ; and G. H. Pereira, St. George's Hosp.

*Medicine.*—C. H. S. Johnston, Birmingham ; P. H. L. Moore and G. H. Pereira, St. George's Hosp. ; and B. A. Perott, Petrograd.

*Forensic Medicine.*—W. Hinds, Durham ; and M. Pettigrew, Sheffield.

*Midwifery.*—M. Bannounah, Guy's Hosp. ; W. H. D. Priest, King's Coll. Hosp. ; L. A. Rostant, St. Thomas's Hosp. ; and J. W. Whitney, London Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery : M. Bannounah, E. W. D. Long, P. B. B. Mellows, and B. A. Perott.

**University of London.**—A meeting of the Senate was held on Jan. 27th, Prof. E. A. Gardner, the Vice-Chancellor, being in the chair. The Doctorates conferred include the following :—D.Sc. in Psychology : Mr. E. H. Magson, of University College, for a thesis entitled How We Judge Intelligence. D.Sc. in Cytology : Mr. R. J. Ludford, for a thesis entitled Studies in Normal and Pathological Cytology, and other papers. Dr. Andrew Balfour and Dr. M. E. Delafield were appointed to represent respectively the University and University College at the Imperial Congress of the Royal Sanitary Institute to be held in London in July to celebrate the jubilee of the Institute.

Applications are invited for the Graham scholarship, value £300, founded by the late Dr. Charles Graham to enable a young man to continue his pathological researches, his services remaining under the direction of the Professor of Pathology at University College. Applicants, who need not be students of the University medical schools, should send in their names before March 1st. Further particulars may be obtained from the Academic Registrar of the University.

**Fellowship of Medicine and Post-Graduate Medical Association.**—On Feb. 11th Dr. S. A. Kinnier Wilson will lecture for the Fellowship on Sudden Cerebral Lesions, at 5 P.M., in the lecture hall of the Medical Society of London, 11, Chandos-street, W. This lecture is free to members of the medical profession. The Queen Mary's Hospital, Stratford, will give a general intensive course in medicine, surgery, and the special departments from Feb. 15th to 27th. Daily sessions will be held from 10 A.M. to 5 P.M. (excepting Mondays, when they begin at noon), including demonstrations of clinical methods and groups of illustrative cases. There will be opportunities for those attending the course to visit the new gynæcological and obstetrical department at this hospital. Courses in progress are a combined course in Diseases of Children at Paddington Green Hospital, Victoria Hospital, and the Children's Clinic, and a comprehensive course in Venereal Diseases at the London Lock Hospital. For the convenience of general practitioners the London Temperance Hospital will hold a general course from 4.30 to 6 P.M. in the various departments of the hospital from Feb. 8th to 19th. The March courses are as follows : Bacteriology, diseases of the chest, gynæcology, ophthalmology, tropical medicine, and a course for general practitioners. Copies of all syllabuses, of the General Course programme, and of the *Post-Graduate Medical Journal* may be had on application to the Secretary of the Fellowship, at 1, Wimpole-street, London, W. 1.

**West Kent Medico-Chirurgical Society.**—A meeting of this society will be held at the Miller General Hospital, Greenwich, S.E., on Friday, Feb. 12th, at 8.15 P.M., when Dr. Millais Culpin will give an address entitled the Scope of Psychotherapy.

**Hunterian Society.**—The annual dinner of the society will be held at the Hotel Victoria, Northumberland-avenue, on Thursday, Feb. 11th, at 7.30 P.M. The Lord Mayor and Lady Mayoress of London and the Bishop of Kensington will be amongst the guests. Fellows wishing to be present are asked to write to Mr. Mortimer Woolf, 91, Harley-street, London, W. 1.

**The Rogers Medical Prize Essay.**—Nearly 10 years ago Dr. Joseph Rogers, Chairman of Council and Vice-President of the Poor-law Medical Officers' Association, left £500 in trust for the establishment of an essay competition, the money to accumulate until the sum in hand sufficed to provide a prize of £150, for the best essay on the Treatment of the Sick Poor of the Country and the Preservation of the Health of the Poor. The first award will be made on June 21st, the anniversary of the death of Dr. Rogers's widow. The trustees are the President of the Royal College of Physicians of London and the Master of the Society of Apothecaries, and the prize will be competed for every ten years.

**Paris Faculty of Medicine.**—A revision and post-graduate course on Recent Views of Clinical Practice and the Use of Current Laboratory Methods in Diagnosis is to be given at the Medical Clinic of the Hôtel-Dieu from March 22nd to April 2nd, under the direction of Prof. Maurice Villaret. There will be 36 lessons, and they will be so arranged as to give students a chance of seeing something of the hospital work of Paris in the intervals. Further information may be obtained from the Secretary of the Faculty of Medicine of the University of Paris. Afternoon courses in Dermatology and Syphilology are held at the Hôpital St. Louis under the direction of Prof. M. Jeanselme. The next course in dermatology will begin on April 12th and in Venereal Diseases on April 17th. Details of these can be obtained from Dr. Burnier, Hôpital St. Louis, Paris.

**Lancashire Hospitals for Crippled Children.**—The Lancashire County Council is asked to approve a proposal to establish a new tuberculosis hospital at Wrightington Hall, near Parbold, where it is proposed to provide 80 beds for adults and 110 for children in five new pavilions, leaving the hall, after suitable changes, as the administrative block. The Ministry of Health has agreed, subject to the approval of the Treasury, to make a grant of £180 per bed towards the capital cost. The Council has also been recommended by its finance committee to apply for sanction to a loan of £25,000 to meet the cost of buying the Biddulph Orthopædic Hospital, North Staffordshire, for the treatment of crippled school-children.

**Birth Control Clinic for Manchester and Salford.**—It is announced that a Manchester and Salford mothers' clinic is shortly to be established, probably with its headquarters in Salford. A woman doctor has been appointed to conduct the work and the necessary funds have so far been obtained by private subscription. The services of the clinic will be available only for women who are already mothers. The promoters aim at providing a channel through which married women, whose means are insufficient to enable them to command the services of a private practitioner, may obtain, under expert medical direction, knowledge of the best known methods of contraceptive birth control. The Ministry of Health does not at present allow this instruction to be given at the existing maternity and infant welfare centres.

**The late Dr. W. C. Cooke.**—After a long illness Dr. William Conway Cooke died on Jan. 20th at the age of 76. A son of the late Rev. Canon Daniel Cooke, of Rochester, Kent, Dr. Cooke studied medicine at King's College Hospital, London, and qualified as M.R.C.S. Eng. in 1875 and L.R.C.P. Edin. two years later. In 1878 he settled at Bognor, where he joined the late Dr. Whitman Thompson in partnership. Later he entered practice on his own and became medical officer of health, holding the office for the long period of 32 years. Some five years ago he resigned owing to ill-health. Dr. Cooke was appointed to this important post when Bognor was a small fishing village, and that the town has now developed into a flourishing seaside resort is no doubt in a great measure due to the care he exercised. In 1895 Dr. Cooke entered into partnership with Dr. F. S. Tidcombe, and they built up a very large practice, not only in Bognor itself but in the district round. During the war Dr. Cooke was a major in the R.A.M.C. (T.). He leaves a widow and a daughter.

**LEICESTER ROYAL INFIRMARY.**—It is hoped to rebuild the central wing of this institution at a cost of £40,000, of which only £12,000 has yet been obtained. An anonymous offer of £10,000 has now been made on condition that the balance of £18,000 is raised without recourse to invested funds.

AN international post-graduate medical course will be held, with special reference to balneology and balneotherapy at Karlsbad on Sept. 12th–18th. Special railway concessions are being offered to foreign doctors. Further information can be obtained from Dr. Edgar Ganz, Karlsbad.

**LONDON TEMPERANCE HOSPITAL.**—This hospital is in such serious difficulties that the board of management state that unless generous support is forthcoming they will have to consider seriously whether it shall be closed. Last year ended with a deficit of £26,000, caused to a great extent by compulsory extraordinary expenditure.

**ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.**—The next quarterly meeting of this association will take place on Feb. 16th at 19B, Tavistock-square, London, W.C. (British Medical Association House), under the presidency of Sir Frederick Mott, F.R.S., at 2.30 P.M. Dr. Isabel Robertson will read a paper entitled "Blood and Vascular Conditions in Psychoses."

**THE LATE DR. VERNON HOWARD.**—Dr. E. V. Howard, who died in London on Jan. 18th, was a graduate in arts, letters, and medicine of the University of Durham, where he qualified M.B., B.S. in 1921. For a time he acted as house surgeon at the Eye Infirmary, Newcastle, and in April last was appointed medical officer and public vaccinator for the Benington district under the Boston Board of Guardians. Besides holding the appointment he was engaged in private practice in this district of Lincolnshire.

**LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.**—Nearly 200 past and present students assembled on Jan. 28th at the School to meet Dr. F. Wood Jones, F.R.S., now professor of anatomy in the University of Adelaide, who was on a brief visit to this country. Prof. Mary Lucas Keene, on behalf of the staff and past students, expressed the pleasure felt at seeing him again at the School, and recalled the seven happy years during which he had worked among them as colleague and teacher. Prof. Jones then gave a lecture on the Theories of Evolution.

**ROYAL SANITARY INSTITUTE.**—A sessional meeting will be held on Friday, Feb. 26th, in the Municipal Buildings, Middlesbrough, from 4 P.M. onwards. There will be discussions on the Malthriving Infant, the Present Type of Small-pox, Organic Salvage, and Housing and Main Drainage, and on the following day there will be an opportunity to visit works of sanitary interest in the neighbourhood. The first two discussions will be opened by Dr. Grace Dundas and Dr. C. V. Dingle respectively. Those intending to be present should notify the hon. local secretary, Mr. S. E. Burgess, city engineer and surveyor, not later than Feb. 20th.

**MIDDLESEX HOSPITAL ANNEXE.**—From Feb. 12th to the 14th the temporary premises of the Middlesex Hospital, which have been formed out of an old M.A.B. infirmary in Cleveland-street (near the hospital) will be on view prior to their opening by the Minister of Health on Feb. 23rd. The opening of the annexe is described as the first step towards the reconstruction of the Middlesex, and as the processes of pulling down and rebuilding are likely to last for several years the temporary home has been made complete in itself. From top to bottom the building has been re-floored, drained, heated, and lighted according to modern standards of hospital design. There are six wards, two operating theatres, and an X ray department, and about 180 patients will be moved into the building before the opening.

**ST. THOMAS'S HOSPITAL.**—The ballot designed to help the funds has actually resulted in a loss to the hospital of more than £1000. Holders of half-crown tickets were asked to place in order of popularity 12 out of a list of 24 sportsmen, and it was hoped that half a million tickets would be sold. Actually only about 250,000 were disposed of, and Mr. G. Q. Roberts, the secretary, believes that the competition was too difficult. Large sums were spent upon advertising, and during the competition two other ballots, with even larger prizes, were announced. The winner of the first prize of £5000, a lady employed in the Post Office Savings Bank Department, has given a donation of £500 and has been elected a governor, and the winner of the touring car, which formed the second prize, a woman shop assistant, has promised to return 10 per cent. of the amount for which she sells it.

**NORTHAMPTONSHIRE** men and women in London are requested to get into touch with an organisation which arranges social gatherings for them. The secretary is Mr. J. H. Woolgar, 1, Dorset-buildings, E.C. 4.

**PRESENTATION TO DR. ESSEX WYNTER.**—Sir John Bland-Sutton presided over a gathering of old Middlesex Hospital men at Prince's Restaurant on Jan. 28th, when Dr. Essex Wynter's friends entertained him to dinner on his retirement from the active staff of the Middlesex Hospital. Dr. Wynter was presented with a portrait of himself, painted in oils by Miss Beatrice Bright, which was the gift of over 140 subscribers.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

### *Opening of the Session.—The King's Speech.*

THE new session of Parliament was opened by the King in State in the House of Lords on Feb. 2nd. In the course of His Majesty's gracious speech from the Throne it was stated that invitations were being issued to the Governments of Belgium, France, Germany, and Italy to attend a conference in London to consider the possibility of securing an effective international agreement for regulating hours of labour. The Government had given earnest consideration to the increasing need for national economy. Proposals for effecting reductions of public expenditure were now being formulated and the House of Commons would be asked to pass measures required to give effect to them without delay.

While His Majesty had learned with satisfaction of the progress made in the building of new houses in the urban areas of England and Wales, the conditions under which many of the people were compelled to live, both in country districts and in the congested areas of numerous towns, still occasioned him deep concern. His Ministers were now examining certain proposals for the improvement of these conditions, and if time permitted they would submit to Parliament measures designed to hasten the removal of the worst defects, both in town and country. Among the Bills which would, if time and opportunity permitted, be laid before Parliament in the coming session were measures dealing with National Health Insurance, the control of road vehicles, the finance of Poor-law in London, and the position and powers of boards of guardians, and the rating and valuation machinery in Scotland.

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

ROYAL SOCIETY, Burlington House Piccadilly, W.

THURSDAY, Feb. 11th.—4.30 P.M. *The following papers will be read:* H. G. Thornton and N. Gangulee: The Life Cycle of the Nodule Organism *Bacillus Radicicola* (Beij) in Soil and its Relation to the Infection of the Host Plant. (Communicated by Sir John Russell, F.R.S.) C. E. Walker: The Meiotic Phase in Certain Mammals. (Communicated by Sir John Farmer, F.R.S.) J. Needham and Dorothy Needham: Further Micro-Injection Studies on the Oxidation-Reduction Potential of the Cell Interior. (Communicated by Sir Frederick Hopkins, F.R.S.) J. W. H. Harrison and F. C. Garrett: The Induction of Melanism in the Lepidoptera and its Subsequent Inheritance. (Communicated by Prof. E. W. MacBride, F.R.S.) J. Gray: The Mechanism of Ciliary Movement. V. The Effect of Ions on the Duration of Heat. (Communicated by Prof. J. Stanley Gardiner, F.R.S.) N. H. W. Maclaren: The Early Development of Cavia: Note on Associated Remains of Previous Placentation. (Communicated by Prof. T. H. Bryce, F.R.S.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Feb. 8th.—5 P.M., WAR. At the Central Medical Board, Royal Air Force, 3 and 4, Clement's Inn, W.C. (entrance off the Strand, near St. Clement Danes Church). Demonstration: The Medical Examination of Candidates for Aviation, with Particular Reference to the Physiological and Ophthalmological Tests Employed.

*WEDNESDAY, Feb. 10th.*—4.30 P.M., PSYCHIATRY. Pathological Meeting in the Laboratory of the Maudsley Hospital, Denmark Hill, S.E. Dr. Golla: Various Recent Methods of Investigation. Dr. Lovell: Macroscopic and Microscopical Specimens. 5.30 P.M. SURGERY: SUB-SECTION OF PROCTOLOGY. Discussion: The Complications of Excision of the Rectum.

Thursday, Feb. 11th.—8.15 p.m., Tropical Diseases and Parasitology. *Laboratory Meeting at the Royal* Army Medical College, Grosvenor-road, S.W. 8.30 p.m., Neurology. *Discussion*: The Sympathetic Innervation of Striated Muscle and its Bearing on the Treatment of Spastic Paralysis.

Friday, Feb. 12th.—5 p.m., *Clinical*. At the *Brompton* Chest Hospital. Dr. Batty Shaw: A Series of Cases illustrating Pure Pulmonary Tuberculosis, Simple Consumption, and Tuberculo-Consumption. Mr. Roberts: Two Cases of Diaphragmatic Hernia. Dr. Burrell: Case of Bronchiectasis. Mr. Tudor Edwards: Two Cases of Dermoid Cyst. 8.30 p.m., Ophthalmology (Cases at 8 p.m.) Mr. *Lindsay Rea*: *Two Cases of* Plastic Repair of Perforated Corneæ. Mr. P. G. Doyne: Ocular Torticollis. Mr. Lindsay Rea: Plastic Repair of Perforations of the Cornea.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.

Monday, Feb. 8th.—8.30 p.m., Discussion on Right Iliac Fossa Pain, introduced by Dr. H. W. Carson, Dr. A. F. Hurst, and Dr. T. W. Eden.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.

Friday, Feb. 12th.—8.45 p.m. (at the Miller General Hospital, Greenwich, S.E.), Dr. Millais Culpin: The Scope of Psychotherapy.

BIOCHEMICAL SOCIETY.

Monday, Feb. 8th.—4.30 p.m. (at the Lister Institute of Preventive Medicine, S.W.). *Communications*: H. Chick: Sources of Error in the Biological Method of Investigating Fat-Soluble Vitamins. P. Hirsch: The Serum Diagnosis of Malignant Growths with the Interferometer. P. C. Raiment: The Oxidation of Uric Acid with Hydrogen Peroxide. I. S. Maclean and D. Hoffert: The Synthesis of Fat by the Living Organism. N. Wright: The Action of Hypochlorites on Amino-acids and Proteins. R. H. Marriott: The *Action of Sodium Sulphide on Hair.*

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

Monday, Feb. 8th.—5 p.m., Prof. A. Tudor Edwards: The Surgical Treatment of Phthisis and Bronchiectasis.

Wednesday.—5 p.m., Prof. A. Lawrence Abel: The Treatment of Cancer of the Œsophagus.

Friday.—5 p.m., Prof. H. W. B. Cairns: Neoplasms of the Testicle.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole street, London, W.

Monday, Feb. 8th, to Saturday, Feb. 13th.—Fellowship of Medicine lecture, Medical Society, 11, Chandos-street, W. *Thursday, 5 p.m., Dr.* Kinnier Wilson: Sudden Cerebral Lesions.—Hospital for Diseases of the Skin, Blackfriars-road, S.E. Instruction in the O.P. Department from 2.30 p.m. Tues. and Frid., 5.30 p.m., Venereal Clinic.—London Lock Hospital, Dean-street. Comprehensive Course, Instruction in the O.P. Department daily and lectures dealing with the various *aspects of the disease.—London* Temperance Hospital, Hampstead-road, N.W. 4.30 *to 6 p.m., Special Course for General Practitioners.*—Combined Children's Course, Paddington Green Hospital, Victoria Hospital (Tite-street, Chelsea), and the Children's Clinic, Conway-street, N.W. Morning and afternoon sessions daily.—Prince of Wales's General Hospital, Tottenham. Tues., 2 p.m., Mr. H. W. Carson: Special Clinical Demonstration. Further information *from the Secretary* of the Fellowship of Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham N.

Monday, Feb. 8th.—10 a.m., Surgical Out-patients: Mr. W. E. Tanner. 10.30 a.m., *Gynæcological* Operations: Mr. A. E. Giles: Throat, Nose and Ear Operations: Mr. W. *Ibbotson*. 2 p.m., Medical, Surgical, and Gynæcological Clinics, Operations. 6.30 p.m., Venereal Department.

Tuesday.—2 p.m., Medical, Surgical, *Throat*, Nose and Ear Clinics, Operations. 4.30 p.m., Mr. E. Gillespie: The Diagnosis and Treatment of Cancer of the Breast.

Wednesday.—10.30 a.m., Surgical Operations: Mr. E. Gillespie. 2 p.m., Medical, Eye, and Skin Clinics, Operations. 6.30 p.m., Venereal Department.

Thursday.—10.30 a.m., *Dental* Out-patients: Mr. E. S. Pierrepont. 2 p.m., Medical, Surgical, and Throat, Nose and Ear Clinics, Operations. 5 p.m., Operations.

Friday.—10 30 a.m., Eye Operations: Mr. N. Fleming. 2 p.m., Surgical, Medical, and Children Clinics, Operations. 3 p.m., Gynæcological Clinic. 6.30 p.m., Venereal Department.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn road, W.C.

Friday, Feb. 12th.—4 p.m., Mr. Archer Ryland: Musculature of the Vocal Cords.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester-square, W.C.

Tuesday, Feb. 9th.—5 p.m., Dr. Graham Little: Lichen Planus.

Thursday.—5 p.m., Dr. A. C. Roxburgh: Scleroderma, Neurofibromatosis.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.

Wednesday, Feb. 10th.—5.30 *p.m., Mr. C. B. Henry*: Radiographic Appearances of Chronic Periodontal Infections.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, *Queen square, Bloomsbury*, W.C. 1.

POST-GRADUATE COURSE: February–March, 1926.

Clinical Lectures and Demonstrations.

Monday, Feb. 8th.—2 p.m., Out-patient Clinic: Dr. Hinds Howell. 3.30 p.m., Paraplegia: Dr. Risien Russell.

Tuesday, Feb. 9th.—2 p.m., Out patient Clinic: Dr. Walshe. 3.30 p.m., Disseminated Sclerosis, II.: Dr. Grainger Stewart.

*Thursday, Feb. 11th.—2 p.m., Out-patient Clinic: Dr.* Kinnier Wilson. 3.30 p.m., Some Effects of Spinal Injury: Dr. Gordon Holmes.

Friday, Feb. 12th.—2 p.m., Out-patient Clinic: Dr. Adie. 3.30 p.m., Demonstration of Re-educative Exercises (in Exercise Room): Mr. Elmquist.

The fee for the Course, including Pathology lectures, is £5 5s. *For those who hold Perpetual Tickets the fee is £3 3s.*

Course of Lectures and Demonstrations on the Pathology of the Nervous System.

Monday, Feb. 8th.—12 noon, Axon: *Dr. J. G. Greenfield.*

Dr. F. M. R. Walshe will give Eight Lectures on The Anatomy and Physiology of the Nervous System at 12 noon on Thursdays if there are sufficient applicants. The Fee for this Course will be £2 2s.

*Dr.* H. J. Macbride will give a Course of Eight Clinical Demonstrations, chiefly on Methods of Examination of the Nervous System, in the Wards at 10 a.m. on Tuesdays and Fridays if sufficient entries are received. The fee for this Course will be £2 2s. (Commencing Feb. 16th.)

Mr. Armour and Mr. Sargent operate at the Hospital on *Tuesday and Friday mornings at* 9 a.m. or at such other times as may be announced.

Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.

*Fees* should be *paid to the Secretary* of the *Hospital* at the Office on entering for the Course.

*J. G. Greenfield, Dean* of Medical School.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

Thursday, Feb. 11th.—4.15 p.m., Dr. Charles Singer: The *History of Gout and Diabetes* (second of four lantern lectures, open to medical students of the University of London).

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.

Wednesday, Feb. 10th.—Dr. Harrison: Chemical Tests in Acidosis.

Thursday.—4 p.m., Dr. Poynton: Upon the Early *Diagnosis* of Tuberculosis.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone-road, N.W.

*Thursday*, Feb. 11th.—5 p.m., Mr. L. G. *Phillips*: Management of Contracted Pelvis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINIC.

Tuesday, Feb. 9th.—3.30 p.m. (at the *South Yorkshire* Asylum), Dr. Vincent: Early Diagnosis of Mental Cases.

Friday.—3.30 p.m. (at the Royal Infirmary), Mr. Cuff: *Surgical Clinical Cases.*

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE.

Friday, Feb. 12th.—4.30 p.m. *(at* Whitworth-street West Branch), Dr. C. P. Lapage: Convulsions in Infancy *and Childhood.*

## Appointments.

Bigland, A. D., M.D., Ch.B. Liverp., has been appointed Visiting *Physician at the* Broadgreen Hill Infirmary, Liverpool.

Griffiths, G. Mary, M.D., M.R.C.P. Lond., Assistant Medical Officer, Cheddleton Mental Hospital, Staffordshire.

Guy, J. B. S., M.B., B.S. Durh., Certifying Surgeon under the Factory and Workshop Acts for the Loftus District of the County of York.

St. Mary's Hospitals, Manchester: Adam, R. S., M.B., Ch.B. Manch., Meacham, G. L., M.B., Ch.B. Manch., Edwards, N., F.R.C.S., Stenhouse, G., M.B., Ch.B. Manch., and Humble, E. Greta, M.B., Ch.B., House Surgeons.

## Vacancies.

*For further information refer to the advertisement columns.*

*Ashton-under-Lyne, District Infirmary.*—H.S. At rate of £150.

*Barnsley, Beckett Hospital and Dispensary.*—Jun. H.S. £140.

*Bath, Eastern Dispensary.*—Res. M.O. £175.

*Birkenhead Borough Hospital.*—Two H.S.'s. £200 and £150 respectively.

*Birmingham General Hospital.*—Part-time Clin. Asst. in Ven. Dept. £350.

*Birmingham, Highbury Group of Hospitals.*—Jun. Surg. O. £350.

*Bolingbroke Hospital, Wandsworth Common, S.W.*—Res. M.O. £200. Also H.S. At rate of £120.

*Bradford City.*—Asst. Bacteriologist. £600.

*Bradford, Municipal General Hospital, St. Luke's.*—H.P.'s and H.S.'s. Each at rate of £200.

*Bristol Royal Infirmary.*—Hon. S.

*Carlisle, Cumberland Infirmary.*—H.P. At rate of £135. Also Jun. H.S. At rate of £135.

*Chesterfield and North Derbyshire Royal Hospital.*—Fifth H.S. At rate of £100.

*Dorset Mental Hospital, Herrison, near Dorchester.*—Deputy Med. Supt. and Pathologist. £575.

*East London Hospital for Children and Disp. for Women, Shadwell, E.*—S. for Nose, Throat and Ear.

*Hampstead General and North-West London Hospital, Haverstock-hill, N.W.*—H.P. Also Cas. M.O. Each at rate of £100.

*Holloway Sanatorium, Virginia Water, Surrey.*—Med. Supt. £1600.

*Hospital for Consumption and Dis. of Chest, Brompton, S.W.*—Æmæsthetist.

*Hyde Borough.*—M.O.H. £800-50-1000, plus travelling expenses.

*Leeds City.*—Chief Clin. Tuberculosis O. £1000.

*Leeds Public Dispensary.*—Sen. Res. M.O. £200.

*Liverpool Open-Air Hospital for Children, Leasowe, Cheshire.*—Res. Jun. M.O. £200.

*London Lock Hospital, 91, Dean-street, W.*—Surg. Reg. £100.

*Manchester, Ancoats Hospital.*—Res. M.O. Also H.S. At rate of £150 and £100 respectively. Also Anæsthetist. 10s. 6d. per attendance.

*Manchester Royal Infirmary.*—Hon. Asst. P. to Out-Patients.

*Manchester, St. Mary's Hospitals.*—Res. Obstet. O. and Res. Surg. O. Each £200.

*Manor House Hospital, Golders Green, N.W.*—H.S. £200.

*Margate, Princess Mary's Hospital for Children.*—Second Asst. M.O. £550.

*Northampton County Mental Hospital, Berry Wood.*—Sen. Asst. M.O. £500.

*Northampton General Hospital.*—Third H.S. At rate of £150. H.P. and H.S. Each at rate of £150.

*Northern Hospital, Winchmore Hill, N.*—Asst. M.O. for Encephalitis Lethargica Unit. £550.

*Royal Free Hospital, Gray's Inn-road, W.C.*—Second Asst. to Venereal Diseases Clinic.

*Royal Northern Hospital, Holloway, N.*—Cas. O. At rate of £90.

*Royal Waterloo Hospital for Children and Women, Waterloo-road S.E.*—Part-time Pathologist. £200.

*St. Mary Abbots Hospital, Marloes-road, Kensington.*—Asst. M.O. £326 17s.

*St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.*—H.S. At rate of £75.

*Salford Royal Hospital.*—Radiologist. £300. Also Hon. Gynæcologist and Hon. Asst. Gynæcologist.

*Salford Union Infirmary, Hope, Pendleton, near Manchester.*—Two Asst. Res. M.O.'s. £300 and £375 respectively.

*Shrewsbury, Royal Salop Infirmary.*—H.P. £160.

*West Bromwich and District Hospital.*—Res. H.S. £220.

*West End Hospital for Nervous Diseases, Gloucester Gate, Regent's Park, N.W.*—Sen. H.P. At rate of £150.

*West London Hospital, Hammersmith, W.*—Asst. Path. £250.

*Western Skin Hospital, 44-46, Hampstead-road, N.W.*—Hon. Radiologist.

The Home Secretary announces a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for the Districts of the Bradford, Keighley, Settle, and Skipton County Courts (Circuit No. 12). Applications should reach the Private Secretary, Home Office, not later than Feb. 24th.

# Births, Marriages, and Deaths.

## BIRTHS.

LINDSAY.—On Jan. 22nd, at The Circus, Bath, the wife of James Lindsay, M.D., M.R.C.P., of a son.

MECREDY.—On Jan. 22nd, at Lower Baggot-street, Dublin, to Dr. and Mrs. Gerald Mecredy—a daughter.

PARRY.—On Jan. 25th, at King's-avenue, Muswell Hill, the wife of Reginald G. Wolfe Parry, L.D.S. Eng., of a son.

TOWNROW.—On Jan. 23rd, the wife of Vincent Townrow, F.R.C.S., Ivy Park-road, Sheffield, of a daughter.

## MARRIAGES.

BAILEY—WIBLIN.—On Jan. 21st, at St. Peter's, Regent-square, W.C., Kenneth Norman Grierson Bailey, M.B., B.S. Lond., to Nellie, younger daughter of the late J. G. Wiblin and Mrs. Wiblin.

WALL—MCGREGOR.—On Dec. 10th, 1925, at St. John's Cathedral, Hong-Kong, by Rev. T. B. Powell, Margaret Alice, daughter of Charles Malcolm and Mrs. McGregor, of Plumstead, S.E., to Austin Darley Wall, M.B., F.R.C.S., of Shanghai, China.

## DEATHS.

BROWNE.—On Jan. 29th, at Carlton-road, Weymouth, Dr. Thomas Browne, R.N., Inspector-General of Hospitals and Fleets, aged 84.

BURKE.—On Jan. 29th, Ulick, second son of Dr. and Mrs. E. T. Burke, of Manchester. Service took place at the Manchester Crematorium on Jan. 31st.

CHILDE.—On Jan. 29th, at Monte Carlo, of heart failure following pneumonia, Charles Plumley Childe, B.A. Camb., F.R.C.S. Eng., M.R.C.P. Edin., of Cranleigh, Kent-road, Southsea.

GERATY.—On Jan. 20th, at Waverley-street, Nottingham, Thomas Geraty, M.R.C.S., L.R.C.P., in his 74th year.

POPE.—On Jan. 31st, at Bournemouth, William Wippell Pope, C.M.G., Lieut.-Colonel late R.A.M.C., aged 68.

STEPHENS.—On Jan. 29th, in London, Augustus Edward Richard Stephens, Lieut.-Colonel (retd.), I.M.S.

WEBB.—On Jan. 29th, at Balitore Cottage, Welwyn Garden City, Helen Webb, M.B. Lond.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## SELECTION OF COD-LIVER OILS FOR MEDICINAL USE.

### BY E. POULSSON,

PROFESSOR OF PHARMACOLOGY, UNIVERSITY OF OSLO.

IN THE LANCET of Sept. 26th, 1925, Prof. J. C. Drummond compares Newfoundland and Norwegian cod-liver oils. He considers that oil from the former country usually has a high content of vitamins, and *recommends it to the attention of* British medical men. We must therein admit that Prof. Drummond is right. The present writer has, in the course of the past four or five years, examined a large number of Norwegian and also some Newfoundland oils, and has received the impression that they are equal as regards growth-promoting activity. A comparison was also made of their antirachitic effects. A large number of rats were placed upon a rickets-producing diet. One group of six animals served as a check. The other groups were given daily doses of from 2 to 8 mg. of Newfoundland or Norwegian cod-liver oil. The control animals exhibited typical symptoms of acute rickets (soft epiphyses, rosy, abnormally high content of water, abnormally low content of lime in the bones), whilst the animals which simultaneously with a rickets-producing diet were given doses of oil were not affected. In order to be on the safe side we give here the average figures from one series of experiments.

A further factor of practical importance is the variation with regard to the content of vitamins. In order to ascertain this we may either determine the lowest growth-producing (or antirachitic) dose. According to Drummond's and Zilva's investigations this lies for the majority of Newfoundland cod-liver oils between 1·3 and 1·6 mg. daily.[1] We can also demonstrate the variations by administring all the oils that are to be investigated in equal doses and then compare the increase in growth produced. In this manner were compared 12 samples of Newfoundland oil procured by the Norwegian Commercial Information Bureau, with 30 samples of ordinary Norwegian cod-liver oil bought openly at various chemists. Each animal was given a daily dose of 2 mg. Each sample of oil was tried upon a group consisting of four rats, and each test-period lasted for four weeks. The results will appear from the following table:—

*Newfoundland Cod-Liver Oil.*

G. = Growth per week in grammes.

| No. | G. | No. | G. | No. | G. | No. | G. |
|---|---|---|---|---|---|---|---|
| 1 | 3·0 | 4 | 7·3 | 7 | 7·7 | 10 | 3 5 |
| 2 | 4·1 | 5 | 4·5 | 8 | 8·2 | 11 | 2 0 |
| 3 | 7·5 | 6 | 0·5 | 9 | 8 0 | 12 | 11·6 |

Arithmetic mean: 5 6.

*Norwegian Cod-Liver Oil.*

| No. | G. | No. | G. | No. | G. | No. | G. |
|---|---|---|---|---|---|---|---|
| 1 | 6·0 | 9 | 5·0 | 17 | 2·8 | 25 | 6·4 |
| 2 | 6·3 | 10 | 5·0 | 18 | 3·5 | 26 | 4 5 |
| 3 | 4·5 | 11 | 6·8 | 19 | 3·5 | 27 | 8 0 |
| 4 | 5·5 | 12 | 5·5 | 20 | 7·5 | 28 | 6·3 |
| 5 | 4·5 | 13 | 7·3 | 21 | 6·0 | 29 | 12·4 |
| 6 | 3·8 | 14 | 7·0 | 22 | 7 6 | 30 | 4 4 |
| 7 | 4·3 | 15 | 3·8 | 23 | 4·0 | | |
| 8 | 4 0 | 16 | 11·3 | 24 | 6·3 | | |

Arithmetic mean: 5·8.

If we take the average figure for all the experiments, the result is that in the said dose the Norwegian oil caused an increase in growth of 5·8 g. weekly, and the Newfoundland oil an increase of 5·6 g. weekly—i.e., that with regard to growth-producing properties they are exactly equal, because in experiments of this kind the errors are greater than the difference found here. It also appears in a most distinct manner that they exhibit somewhat the same variations.

Mention may finally be made of the taste and smell of the oil, both factors of considerable practical importance. In order to be able to make any definite pronouncement on this point I should need a considerable number of samples of Newfoundland oil. Hitherto my impression has been that Norwegian oil is decidedly to be preferred in these respects. This may possibly be due to the circumstance that our most important fishery—viz., that of Lofoten—takes place in the months of February-April, when the average temperature is −2° to +2° C., and that the subsequent Finmark fishery takes place in April–June when the temperature is only a few degrees above 0, whilst the chief season in Newfoundland is in the summer months with an average temperature in August of +15° C. As autolysis and decomposition commences extremely quickly in the liver, even in the course of a few hours, a low temperature is an advantage, although only as regards taste and smell, since the content of vitamins is scarcely affected thereby.

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[1] S. S. Zilva and J. C. Drummond: Annual Report of the Department of Marine and Fisheries for the Year 1922, p. 19, St. John's, Newfoundland.

The result is, therefore, that oils from Newfoundland and from Norway are equal as regards content of vitamins and variability, and it is therefore quite natural that Prof. Drummond should direct the attention of his fellow countrymen to a product that originates in the British dominions.

To this recommendation, however, he attaches one or two remarks that are not correct and which strongly challenge contradiction. It is said that Finmark oil, like that of Newfoundland, is rich in vitamins, but that oil from Lofoten, our largest fishing district, is often relatively poor in vitamins, "Generally speaking they (the Finmark oils) are found to be from five to ten times more valuable than the average oils prepared in the Lofoten area although wide variations may occasionally be encountered," the reason apparently being that "when the fishes are practically starving during the spawning period, and at the same time are transferring much fat and vitamin to the reproductive cells, the livers yield an almost white oil of relatively low potency."

To this we may remark in the first place that the Lofoten oils have not the said low content of vitamins, and in the next that by the hypothesis just quoted, Prof. Drummond goes contrary to the results that a short time ago were described by him in conjunction with S. S. Zilva and M. Graham.[1] This will appear from the following :—

### *Lofoten Oils.*

Since 1922—i.e., during the last four years—a large number of Norwegian cod-liver oils have been examined, and it has been found that as a general rule the Lofoten oil has a high content of vitamin. Of course, this oil, like those of Finmark and Newfoundland, is subject to exceptions. Particularly important investigations were made in 1925 with a view to obtaining a general survey of oils from all the various Norwegian fishery districts. For this purpose the Superintendent of Fisheries caused a large number of samples, 489 in all, to be collected. Of these average samples were taken to represent each of the more important zones with due regard to the size of the stocks. Thus, from a stock of 800 barrels the sample is twice as large as that from a stock of 400 barrels, and so on. In addition to the large sample from each zone a number were also taken at random in order to establish the extent of the variations. The large Lofoten sample was taken from 86 different factories with a total stock of 12,173 barrels, and should, therefore, reliably represent the average quality of the oil at the time the samples were taken. This was done during the period March 18th to April 18th—i.e., at the time when the fish were ready to spawn or had already spawned. The results of the investigations were that the average sample turned out to be very potent, for even in daily doses of only 1 mg. it promoted growth.

The increase in growth of all the eight rats that were given this dose will appear from the following table :—

38, 50, 60, 56, *56, 58, 62, 73, 80, 79* .. .. .. + 23
35, 48, 55, 58, *60, 66, 62, 68, 70, 70* .. .. .. + 10
46, 55, 66, 65, *61, 71, 78, 84, 85, 88* .. .. .. + 27
45, 57, 65, 77, *73, 77, 73, 74, 84, 89* .. .. .. + 16
41, 55, 66, 73, *71, 77, 85* (Abscess, killed) .. .. + 14
48, 63, 65, 66, *68, 68, 75, 83, 83* .. .. .. + 15
45, 58, 65, *63, 66, 71, 77, 77* .. .. .. + 14
40, 52, 58, 62, *63, 76, 83, 87, 87* .. .. .. + 24

The figures give the weekly weights of the animals, those italicised belonging to the test-period (1 mg. of oil daily), the others to the preparatory period (diet without vitamin A).

### *Relation of the Vitamin Potency of the Liver Oils to the Sexual Condition of the Cod.*

In the sexually mature cod which is ready to spawn the liver is very large and yellow in colour—i.e., full of oil, but during the spawning season the liver shrinks and assumes a reddish hue—i.e., the oil is depleted. It is probable that the fats in the liver have a double action. The cod has a long distance to travel from the open sea to the spawning grounds along the coast. In this comparatively restricted area there is by no means sufficient food for the huge numbers of fish, so that the spawning season is largely a period of fasting. It may be assumed that the stored up liver oil partly goes to sustain the fish and partly to the sexual organs which in the spawning season—i.e., at the very time when nourishment is scarce—increase greatly in size. It might be thought that both vitamins and fats would thus be used up in the same proportion, or that the vitamins would be principally absorbed by the sexual organs. In the latter instance the oil produced from cod which had spawned would be poor in vitamins and of little medicinal value. It has been shown, however, that such is not the case. After numerous investigations I have found no important or constant difference.

To my surprise I discovered a very valuable confirmation of my results in a paper published by Zilva, Drummond, and Graham in 1924, which states: "This passage of the vitamin to the genitals might either have had no influence on the vitamin concentration of the residual oil of the liver in spite of the diminution of the oil content of the organ, or it might have removed more of the vitamin in proportion to the oil. In the former case the potency of the oil during the various stages of the reproductive cycle would not be affected appreciably, in the latter case the livers would yield oils with a diminished vitamin content during the spawning period." The question is therefore very clear, and the authors are in no doubt as to the answer. Fish from Flamborough and Scarborough were the first to be investigated.

The oil was produced by the authors themselves in the usual way. The result was: "Little variation in the potency of the oils could be recorded. Even the liver oils from spent cod in March fish, which must have spawned just before being caught and which had no time to recuperate, did not deviate in potency from the oils of fish before spawning and several months after spawning and consequently after recuperation. It is, therefore, evident that, as the spawning period approaches, the oil and the vitamin from the liver both pass into the gonads. The relative potency of the residual liver oils is, however, not affected. Further confirmation of this observation that the fluctuation in potency of liver oil is not controlled by the condition of the fish in the reproductive cycle was obtained by examining liver oils from various fish caught in the North Sea and in the vicinity of the British Isles at different times of the year—viz., September, 1921 and 1922, November and December, 1921, January, February, April, May, June, July, August, 1922. During this period no serious fluctuation could be observed in spite of the number of samples (about 40 in all) that were examined." The paper concludes with the following summary: "The sexual condition and age of the cod do not influence the vitamin A potency of the liver oil."

It seems to me that Prof. Drummond's statements in THE LANCET in 1925 scarcely correspond with the results of his own investigations in 1924.

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[1] S. S. Zilva, J. C. Drummond, M. Graham: The Biochemical Journal, 1924, xviii., 178.

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## COLONIAL HEALTH REPORTS.

### *Sierra Leone.*

THE territory comprising the colony and protectorate is about the size of Ireland (27,250 square miles). The colony proper as at present constituted comprises the Sierra Leone Peninsula, Sherbro Island, Turner's Peninsula, and a number of small islands, of which the most important is York Island, adjacent to Sherbro, as it is a port of call for sea-going steamers. Freetown, the capital, is situated on the north-east corner of the peninsula on a fine natural harbour formed by the mouth of the Rokelle or Sierra Leone River. The town enjoys a splendid pipe-borne water-supply, the catchment area being situated in the mountains where there are large reservations of land. This and other equally important sanitary improvements have done much towards dispelling the evil reputation from which the city has long suffered. The population of Freetown at the census of 1921 was 44,142. The population of the protectorate, according to the same census, was 1,456,148, composed of various tribes, of which the Mendes and Temnes are the most numerous. The number of European residents during 1924 in the colony and protectorate was 108 officials, 480 military, and 420 non-officials (including white Americans). There was a marked reduction in the incidence of dysentery in Freetown, only 43 cases being reported as against 138 in 1923. Tuberculosis appears to be increasing. Two cases of small-pox were reported in Freetown and there were ten cases in the protectorate. Chicken-pox was fairly frequent both in the colony and in the protectorate; there were no cases of diphtheria, influenza, or cerebro-spinal meningitis. The sanitary department purchased and destroyed 12,708 rats, paying for them at the rate of 1*d*. each. The climate of Sierra Leone is tropical with a heavy rainfall and high atmospheric humidity during the greater part of the year. The shade temperature rarely falls below 70° F. On the other hand it rarely rises above 90° even in the dry season, and there is always a sufficient daily range of temperature to render the mornings and evenings relatively cool. It is not always damp; speaking generally, there are four months of very dry weather, when little or no rain falls, and four months of varying conditions with a moderate rainfall for a tropical country. The single rainy season lasts roughly from May to the end of October, the heaviest rainfalls occurring in July, August, and September. Records of the past 10 years show a marked decrease in the rainfall, and this is said to be common to the whole of West Africa and the neighbouring islands. As to the conditions of living in Sierra Leone, it is remarked that there are facilities for playing cricket, football, tennis, and golf. As the country is hilly, cycling is laborious and horses do not thrive, but for some distance out from the town the roads are good enough for motor-cars and motor-cycles to be used. Local meat is by no means so good as English meat, but when properly cooked is quite nutritious. Excellent fresh fish can be bought, and, apart from potatoes and onions, which are imported, fresh vegetables and fresh fruit can be obtained at reasonable prices throughout the year. A cold storage plant, from which fresh meat and fish, game, &c., can be procured, has been started by one of the European firms in Freetown.

#### *Jamaica.*

Mr. Charles W. Doorly, acting Colonial Secretary, is the author of a report on the affairs of the colony for the year 1924, from which it appears that the estimated population is 904,405. The number of marriages during the period under review was 3118. The births registered were 33,132, being at the rate of 36·8 per 1000, as against 38·2 in 1923. The number of deaths registered was 10,692, the death-rate being 21·7 per 1000, as compared with 22·7 in 1923. During 1924, 35·5 per cent. of the total deaths were those of children under 2 years of age, and of these 27·3 per cent. were those of children under 1 year of age. The principal causes of death per 100 of total deaths amongst the inhabitants of Kingston, the capital, were: Diarrhœa and enteritis, 10·3; atrophy, icterus, and scleroma of the newborn, 11·6; phthisis, 10·7; enteric fever, 5·8; pneumonia, 5 8; heart disease, 6·7; chronic Bright's disease, 4·1; cerebral hæmorrhage, apoplexy, 3·1. During the month of July an Internation Conference on Health Problems in Tropical Countries was held at Kingston under the auspices of the medical department of the United Fruit Company. The Conference was under the presidency of Dr. W. F. Deeks, the general manager of the company's medical department, and was attended by many prominent men of the medical profession from all parts of the world, including Sir Leonard Rogers, Sir Thomas Oliver, Sir Arbuthnot Lane, Dr. A. Castellani, and Dr. F. G. Banting, the discoverer of insulin, and interesting papers were read at the meetings. Increased interest was taken during the year in public health generally throughout the colony. Full-time medical officers of health were appointed for two parishes. The International Health Board (Rockefeller Foundation) pursued their campaign of hookworm eradication. Alastrim continued to exist in the island, but the incidence of the disease decreased during the year to such an extent that the number of cases reported in the last quarter was the smallest since the outbreak started. The advent of rains in the latter part of the year caused local epidemics of malaria. The mean island rainfall of the four divisions of Jamaica for the year 1924 was 79 28 inches, or about 4 per cent above the 50-year average of 76·46 inches. The rainfall for Kingston was 39·19 inches, and the average 33·59 inches. At Kingston the mean temperature for the 12 months was 79·1° F. Hail fell at Kempshot on July 14th during a thunderstorm; also at Santa Cruz on July 30th, accompanied by rain and high wind. A few very slight shocks of earthquake were felt at several places in the island in the months of March, June, July, August, September, October, and November.

### SHANTUNG CHRISTIAN UNIVERSITY, TSINAN.

*To the Editor of* The Lancet.

Sir,—The University Hospital of the Shantung Christian University, Tsinan, North China, is in need of a radiologist, and the board of governors would be very glad indeed to receive an offer of service from a young specialist in this department of medicine, who would be prepared to go out upon a missionary footing. An excellent equipment has been got together, provided largely by the Wesleyan Methodist Missionary Society, one of the coöperating bodies in the University, and that Society is prepared to support the desired worker.

Particulars respecting terms of service will gladly be given by either of the undersigned, and to those looking out for a medical missionary career, who may have had special training in radiology, this opening should present features of attractive interest. We may add that the University is carried on by 15 British and American societies, and is one of the biggest coöperative educational efforts to be found upon the mission field.

We are, Sir, yours faithfully,
R. Fletcher Moorshead,
Hon. Sec., Shantung Christian University.
F. Percy Wigfield,
Medical Secretary, Wesleyan Methodist Missionary Society.
J. Stanley Ellis,
Ex-Radiologist of the University.
Furnival street, London, E.C., Jan. 30th, 1926.

### CLEAN BREAD.

*To the Editor of* The Lancet.

Sir,—One gets tired of hearing so much about clean meat and clean milk—both of them unattainable. The meat, however, is always cooked and so, very frequently, is the milk; it should be always. There is a much more crying evil in the dirty delivery of bread. I have often seen a bicycle fall over and the bread scattered in the gutter. The boy picks it up and polishes it on his dirty sleeve. I have seen worse things in which a dog plays an important part while the boy plays marbles. Men who ought to know better wipe their horse's nose, or feed him with sugar, or mess about with their motor engine and then deliver bread with their filthy hands. The bakers refuse to supply in paper bags because of the cost, not of paper, but of labour. Do please start a crusade against this evil. I fear the local bakers might refuse to supply me with bread if I signed my name and so, in place of it I subscribe this—

Jan. 23rd, 1926. Panis.

*** We have repeatedly advocated the clean handling of bread. As long ago as 1913 M. Herriot, then Mayor of Lyons, issued a decree that loaves delivered other than in a closed vehicle must be completely wrapped in an impermeable covering.—Ed. L.

### THE NORTH-WESTERN NATURALIST.

Medical men have always been active in promoting natural history studies, and their medical implications appeal to those who feel that it may be useful as well as agreeable to hunt for mosquitoes or snails and know all about them. Some of our readers therefore will probably be interested to know that an attempt is being made to start a new natural history journal, the *North-Western Naturalist*, to replace the *Lancashire and Cheshire Naturalist* which unfortunately came to an end last year. Mr. A. A. Dallman (17, Mount-road, Higher Tranmere, Birkenhead), who is known to many medical botanists, will be glad to hear from anyone interested, and especially from those who are prepared to subscribe to the new paper or help to support it through its infancy by some guarantee.

### THE ABDOMINAL MUSCLES.

Mr. F. A. Hornibrook has already published a book on the Culture of the Abdomen, in which he described his system of exercises for the abdominal muscles, and he has now gone further in a second book (Physical Fitness in Middle Life, Cassell, 6s.) by taking up some of the conditions in which these exercises are indicated. It is the middle-aged man who particularly comes in for attention, and it is his overloaded colon, "the White Man's Burden," which gets most of the blame for the physical unfitness so common among this class, especially in our cities. Intestinal toxæmia has attracted many lay disciples. Mr. Hornibrook is guarded in his enthusiasm, and although the idea of practising the contraction of the abdominal muscles while walking to work sounds disconcerting, the general teaching does not lack common sense. The plea for a more rational posture while defæcating is worthy of support. The postscript on the value of wholemeal bread is not convincing, nor is it in keeping with the non-controversial nature of the rest of the book.

### VINOLIA MEDICATED SOAPS.

We have received from the Vinolia Company, Limited, Lever House, Blackfriars, London, E.C., specimens of their medicated soaps which they commend by reason of the fact that they are made from carefully selected ingredients and are the outcome of experience in a large research laboratory, while chemical tests are made at each stage of manufacture. Baby Soap, in which a special base is employed, and to which petrolatum is added before milling, produces an even, soft, and soothing lather, while the Carbolic Health Soap and the Coal Tar Soap, the latter of which contains cresylic compounds with lanolin, are pleasant to use. The Medicated Cream Soap, with which is incorporated boric acid, calamine, zinc oxide, and lanolin, will be found useful in suitable cases, as will also the Sulphur Skin Soap with its colloidal sulphur content. Samples of these soaps will be sent for trial by medical men who apply for them to the manufacturers. We are informed that the works of the Vinolia Company are always open for inspection by members of the medical profession.

At the annual meeting of the Keswick Cottage Hospital it was stated that there were only about 20 subscribers out of a population of about 5000.

Dr. Cyril Hartley Durrant, chief medical officer, has been appointed a member of the Executive Council of the Presidency of Saint Christopher and Nevis for a further period.

# Hunterian Lecture

ON

# PSEUDO-HERMAPHRODITISM AND HYPOSPADIAS.

## THEIR SURGICAL TREATMENT.

*Delivered before the Royal College of Surgeons of England on Feb 1st, 1926,*

By ARTHUR EDMUNDS, C B , M S Lond ,
F R.C S Eng ,
SURGEON TO KING'S COLLEGE HOSPITAL.

*(With Illustrative Plate.)*

The current teaching concerning the operation for hypospadias is well expressed in an article by H. A. Fowler in Cabot's "Modern Urology" published in 1924. In this article the author states :—

> "It is quite apparent, from the numerous procedures which have been suggested, that no entirely satisfactory operation for the cure of peno-scrotal and perineal hypospadias has been devised. This condition still remains one of the most difficult to treat successfully"

The list of names of the authors, who have published operations for the treatment of this condition, is a very long one ; and one is almost driven to think that there can be few surgeons who have not devised an operation. But, in reading the accounts of these procedures, one cannot feel that the authors are writing with any degree of conviction, and photographic records of the results of operation are conspicuously rare. It is difficult to reconcile many of the procedures recommended with the conditions which actually exist, and it is hard to see how anything but a cicatricial mass could result from many of them

An operation, for example, in which the anterior urethra is reconstructed by a stab wound through the vascular fibrous structures of the penis, lined with a transplanted saphenous vein, does not satisfy the demands nor agree with the known principles of surgery; and even should the graft become vascularised, it is still more difficult to understand how the endothelial lining of a blood-vessel can become converted into a mucous membrane.

The use of a section of the ureter is more reasonable ; but this is extremely difficult to obtain, and it must be in only very exceptional circumstances that an operation entailing the removal of a piece of healthy ureter would coincide with an opportunity for transplantation. It has been suggested that the surviving organs from a recent corpse might be used, but, apart from any theoretical considerations as to the use of tissues from another individual, there are obvious difficulties and objections to this. These suggestions, however, are very instructive as showing the despair with which many surgeons view the treatment of hypospadias.

In Keen's "Surgery" the author says, "Occasionally brilliant results are obtained," but I hope to show that not only can an occasional result be obtained, but that these can be obtained in practically every case. The only operation that appeals to me as being on sound lines is that of Bucknall; but this is open to the grave objection that he used flaps of the scrotum with the liability of transplanting hairs into the interior of the urethra. Bucknall quotes three successful cases which he followed up for a few years. Most of the writers in text-books advocate the operation of Beck in which, after the organ has been straightened, a flap of skin is transplanted to the under surface of the penis, fashioned into a tube, and then brought to the tip of the penis through a tunnel made by transfixing the glans. In Mayo's operation a similar principle is adopted, but the tube is fashioned on the dorsum and brought through a stab wound down towards the bladder. It is possible that in some cases these grafted tubes may have survived, but the operation must be fraught with uncertainty, and one cannot help feeling that, even if it were successful, the result would be an organ tied down by a fibro-cicatricial band through its midst.

Josserand has suggested making an artificial tunnel by transfixion lined with a skin graft wound round a rod—an epithelial inlay in fact. These operations have been devised for the milder degrees of the deformity and are obviously unsuitable for the more extreme cases, and, I should think, are impracticable for any case where the opening of the urethra is seated more than a very short distance behind the glans. In Binnie's "Treatise of Operative Surgery" the author advocates Beck's operation when the urethral opening is not too far from the glans, and states that for extreme cases "nothing can be done." The recent development of the tubed flap will, of course, make it possible to transplant as much tissue as may be required on to the penis, but I doubt whether any modification of this method will succeed in producing as natural and satisfactory an organ as the simple flap operation which I describe, although I have no doubt that by its use a tubular organ of any size and length can be readily constructed. The deformity is not extremely rare Five cases occurred in ten years at Queen Charlotte's Hospital out of 18,334 births, and it is fairly obvious that there is room for a satisfactory operation, unless one adopts the point of view that, inasmuch as these patients do not suffer from incontinence, there is no need to do anything

I venture to think that there is no deformity for which treatment is more urgently called. For example, a lady of my acquaintance had a little son born with this deformity Her brother, who was a medical man, regarded it as a family calamity, and a medical friend expressed the opinion "that it would be a good thing if the child died." The parents were extremely anxious that his deformity should not be known. He was not allowed to go to school or to go to any parties or festivities, where the need to urinate and the posture he was compelled to adopt would reveal his condition. This may have been an extreme view to take, but it requires little imagination and knowledge of the average small boy to realise that a schoolboy with hypospadias would be seriously handicapped, and would be liable to unkind comments from his schoolmates. The case I have just mentioned has been operated on with complete success; the child now mixes ordinarily with other children and is preparing for a public school. Beyond this, which one might term a social reason for the operation, there are others. The stream cannot be projected forward, the child, unless carefully supervised, is apt to get wet and the perineum to get sore and eczematous. The child himself realises that he is different from the rest of the community and is liable to various forms of perversion. Marriage is, of course, impossible, and in every way the child's happiness is seriously handicapped

### *Varieties of Hypospadias.*

From the point of view of treatment these cases fall into four groups. In all the prepuce is cleft on the under side and redundant on the upper aspect.

1 The glans alone is cleft. *Usually there is a deep groove on the under surface of the glans, the edges of which lie in close apposition one to another, so that the urethral opening consists of a couple of lips, which are not situated at the tip of the organ, but pass down for a short distance on to its under side. The lower wall of the urethra is usually thinned out at its termination.*

This condition calls for no treatment at all unless the meatus should be constricted. As a matter of fact it is generally abnormally patent. One patient who consulted me about the abnormal appearance of his penis suffered no inconvenience at all, married [illegible] had several children.

2. *The opening of the urethra is situated [illegible] behind the glans on the body of the penis. [illegible] groove in the glans is shallow and [illegible]*

opening is constricted. When the urethra opens far forward there is usually no incurvation of the penis, when it opens near the scrotum there may be a certain amount of curvature. In fact, the nearer the opening of the urethra is to the perineum the greater is the liability to curvature of the penis.

3. The urethra opens at the root of the scrotum and the penis is generally markedly curved. The anterior part of the urethra is generally represented by a shallow groove, which stands out as a taut band when an attempt is made to straighten the penis. At the bottom of this groove the follicles of Littré are seen. The opening of the urethra is bounded below by a thin crescent of skin and is often definitely constricted (see Fig. 1). This should be compared with Fig. 2, which shows the condition of the same patient at the age of 19.

4. There is a complete cleft of the scrotum and the urethra opens in the perineum.

Cases of this last group are often mistaken for females, and in infancy the resemblance is more marked than in older children. The redundant prepuce is continued down on either side resembling the labia minora. A rudimentary vagina may open between the urethra and the anus, and there are, in fact, few, if any, imaginable deformities which have not been described. It is important to distinguish between a male with a cleft scrotum and a female with a hypertrophied clitoris. In many cases the diagnosis is simple, but in others this may be difficult or impossible in the absence of a microscopical examination of the essential sex glands. Cases of doubtful sex should be carefully examined, preferably under an anæsthetic, and if at the end any doubt remains, the old rule—namely, to bring the child up as a male—is, in my opinion, wise.

Undoubted cases have been reported in which ovarian and testicular tissue have been present in the same individual, but it is extremely doubtful whether any individual has ever been bi-sexually potent. There are many old and curious stories, but I doubt whether these would stand scientific criticism. Of course, there are many cases in which the deformity has led to sexual irregularities, but these cases seem to me to afford only one more reason, if one were needed, of the necessity for endeavouring to establish the sex of a child in a doubtful case, and if possible to restore the external parts to as close a resemblance to the normal as possible. The vast majority of cases are, however, psychologically normal, and when abnormality occurs it is quite possible that it is secondary to the deformity.

### RE-REGISTRATION OF CASES OF SEX ERROR.

In any case in which an error has been made about the sex of a child the parents or guardians should not neglect to re-register the birth of the child. A name can be legally changed, or at least added to, at confirmation, it being uncertain whether the original Christian name is cancelled or not.

I am indebted to the Registrar-General for the following statement as to the procedure to be followed in re-registering a child :—

> "In such cases application for the re-registration of the birth should be made to the Registrar-General accompanied by the particulars of the case by the medical practitioner who has examined the child. If this is satisfactory the Registrar would be instructed to re-register the birth on the information of one of the parents or other informant qualified under the Birth and Death Registration Act, 1874. Should there be no qualified informant available, then the original entry would be corrected on the authority of a statutory declaration, made by two persons cognisant of the facts, one of whom would be the medical practitioner."

### THE OPERATION.

The essential characteristics of all these types of deformity are the same, they only differ in degree, and the operation which I describe is suitable for all of them. I first published this operation in THE LANCET (1913, i., 447), but at that time I had only operated upon a few cases and was unable to speak definitely as to the results. I have now operated upon over 20 cases and have been able to see many of these after the lapse of a number of years. I have operated upon all degrees of severity and wish to take this opportunity of presenting my results to the profession.

The operation of constructing the ureter is carried out on the lines devised by Duplay. This operation is perfectly sound in principle, but is, as a rule, impracticable for the simple reason that there is not enough tissue to construct the ureter and clothe the penis in skin. It is to prepare the way for a final Duplay's operation that the preliminary stages to be described are undertaken, and their object is to convert the redundant preputial hood into two flaps along the sides of the penis, including its glandular portion, which can be utilised to line the new urethra and to cover it with skin. This is carried out in three stages, with intervals of three months between. I have found that the best age to operate is about 4—that is, when the parts are sufficiently large to handle and before there is any special sensibility in the organ. Also, as this operation promotes growth, it is essential that it should be performed well before puberty.

*Descriptions of Figures 1 to 10 on Illustrative Plate.*

FIG. 1.—Infant showing the urethra opening at the root of the penis, the curved penis, and the hooded prepuce.

FIG. 2.—The same patient at the age of 10. Six years after the operation had been completed and the wound completely healed a small fistula appeared. This gives him no trouble.

FIG. 3.—Passing the steadying sutures (stage 1).

FIG. 4.—Making the buttonhole.

FIG. 5.—The urethra has been dissected up, the buttonhole cut across, and the incisions into the halves of the buttonhole marked out (stage 2).

FIG. 6.—Method of making incisions into the halves of the buttonhole.

FIG. 7.—Opening up the incision shown in Fig. 5.

FIG. 8.—Suturing the flaps over the raw surface.

FIG. 9.—Condition at the end of stage 2.

FIG. 10.—The incision for the final stage (stage 3).

### *The First Stage of the Operation.*

The first stage is to make a buttonhole in the preputial hood. The simplest way of doing this is to pass a couple of stitches from the mucous or glandular aspect of the prepuce through to the upper or dorsal side. These are placed about 1 cm. apart and 1 mm. from the corona. (Fig. 3.) Holding these sutures taut on either side so as to steady the part, the whole thickness of the prepuce is then transfixed with a scalpel between the two stitches, making an incision extending to within 1 mm. of these and keeping about 1 mm. away from the corona. (Fig. 4.) The end of one stitch is then pulled through the slit and tied to its other end, thus closing the incision at one end by suturing the skin to the mucous membrane. The same procedure is carried out at the other extremity of the wound and a few points of suture are added in between. The slit in the prepuce is thus sewn round like the buttonhole in a coat. It is immaterial how the incision is made in the prepuce, but the tissues are so loose that it is rather difficult to make a neat buttonhole, and the method which I have just described will, I think, be found the best way of doing this.

As a result of this proceeding the prepuce is partially dissected away from the corona, and its main blood-supply—from the dorsum—being cut off, a collateral circulation is induced from the sides which increases its viability in the subsequent stages of the operation. Should the opening of the urethra be at all constricted it should be slit backwards at this stage and a suture passed, uniting the skin and mucous membrane at the scrotal end of the incision.

Three months is allowed to elapse before the next stage of the operation is undertaken, to allow the wound to heal soundly and to allow for the absorption of the scar tissue.

FIG. 1

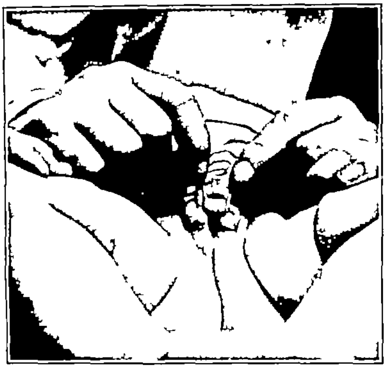


FIG. 2.

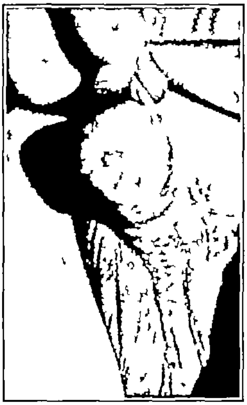


FIG. 3.

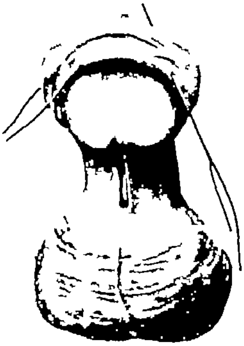


FIG. 4

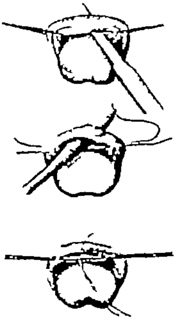


FIG. 5

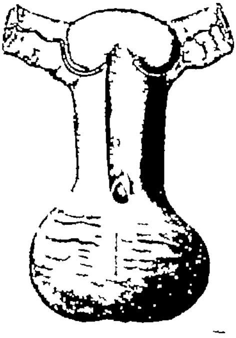


FIG. 6.

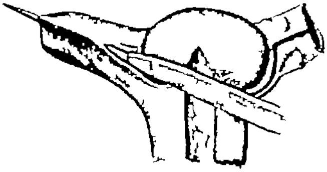


FIG. 7

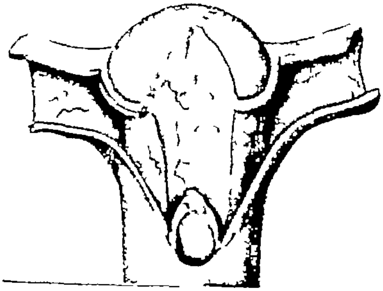


FIG. 8.

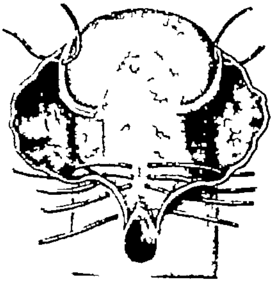


FIG. 9

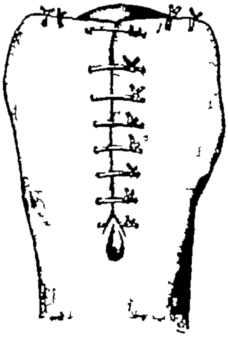
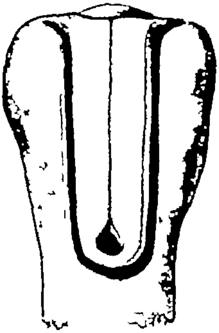


FIG. 10



MR. ARTHUR EDMUNDS PSEUDO HERMAPHRODITISM AND HYPOSPADIAS

*Figures 11 to 16 appear in the text. See [illegible] reverse side of plate.*

FIG. 17.

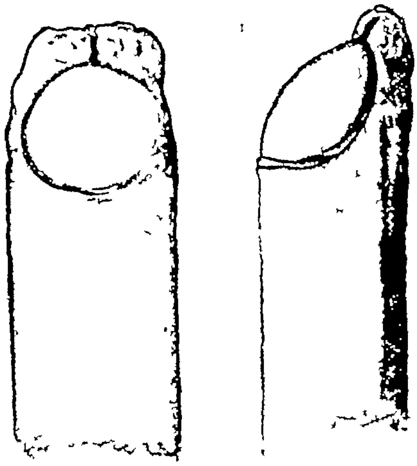


FIG 18

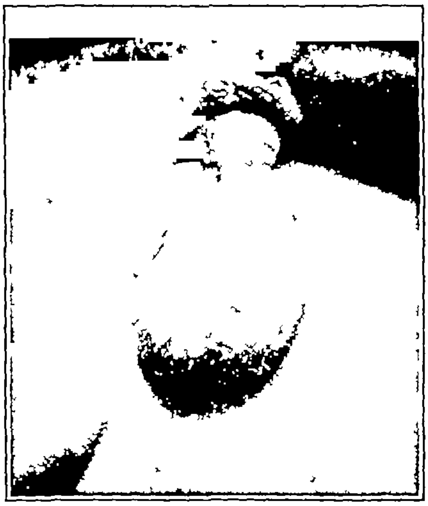


FIG. 19

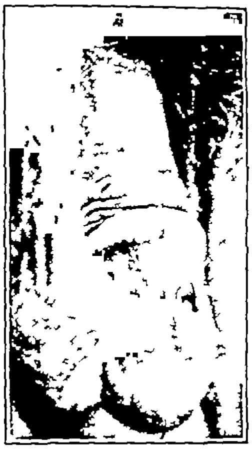


FIG. 20

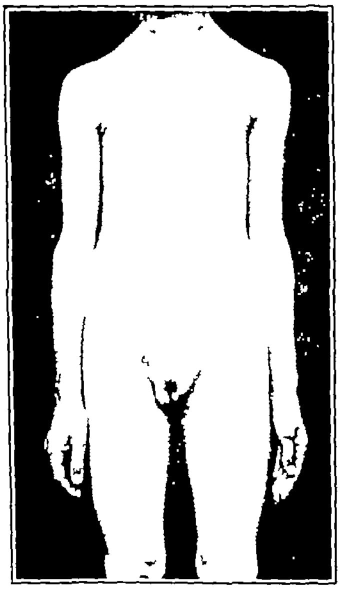


FIG. 21

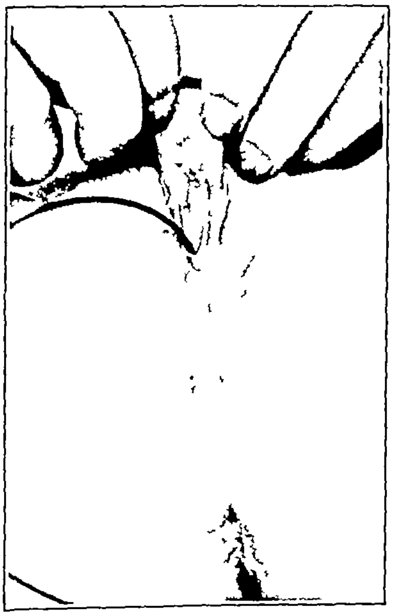


FIG. 23

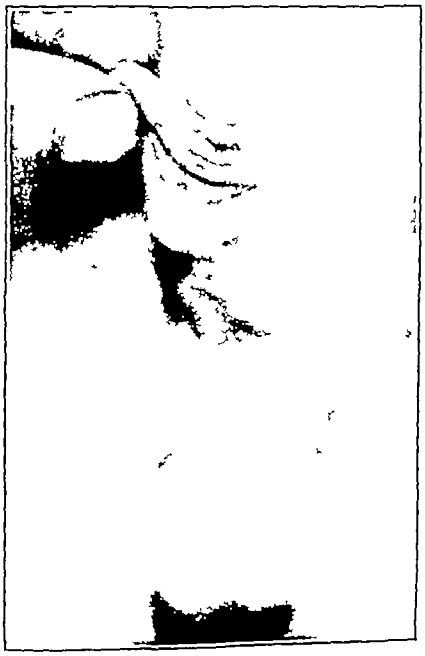


FIG. 22.

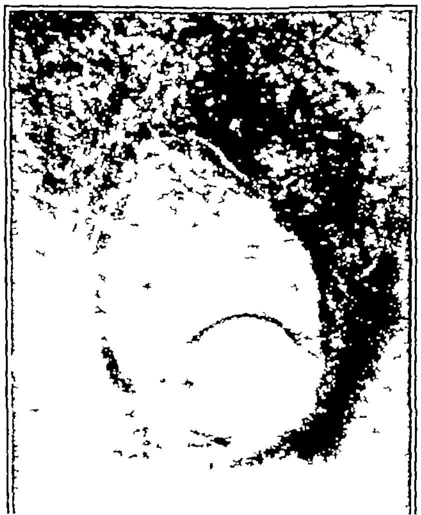
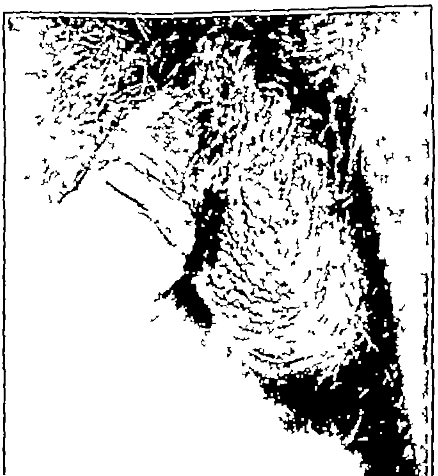


FIG 24



### *The Second Stage.*

So far no attempts have been made to straighten the penis, but this must now be considered. An incision is made along either side of the urethral groove, the two incisions being joined in front in the substance of the glans. The malformed and contracted urethral channel with its rudimentary corpus spongiosum is now dissected up towards the scrotum (Fig. 5), and it will be found that the whole of the urethral groove, originally about three-quarters of an inch in length, shrinks up into an insignificant little knob of tissue. Even in those cases where there has been no curve of the penis it will be found that the urethra shrinks up to much the same extent, and at the close of this stage it is not possible to say whether the penis was originally curved or not.

This stage of the operation must be done very thoroughly so that the organ is completely straightened, and any bands of fibrous tissue which hinder this should be freely divided or removed. As a rule the dissection of the urethra meets the case entirely, but a few transverse incisions on the under surface of the raw area from which this urethra has been lifted may be necessary. This part of the operation is made much easier by passing a guide stitch through the glans to hold everything taut and steady. I have omitted this from most of my drawings for the sake of simplicity, but in actual operating it is nearly always necessary. It will be noticed that the raw area from which the urethral groove has been dissected up is not only longer but considerably broader than one would have expected. Only in exceptional cases is it advisable to remove any tissue in dissecting up the urethral groove. In one case this seemed wise, and a section showed that there was actually a certain amount of erectile tissue in the fragment of tissue taken away.

*Descriptions of Figures 17 to 24 on Illustrative Plate.*

FIG 17.—Diagram of the final result.

FIG 18.—Result of operation soon after its completion, showing the large amount of redundant tissue, which is often present at first.

FIG 19.—*The same patient as in Fig 18 at the age of 18*, the redundant tissue has all disappeared.

FIG. 20.—Pseudo hermaphrodite-sex error, before operation.

FIG 21.—External genitalia of same patient. A catheter has been passed into the urethra and the prepuce held up

FIG 22.—The same patient after operation.

FIG 23.—Result in a child in whom the urethra opened half way down the penis. The meatus is terminal and the penis rather large for the child's age

FIG 24.—The result in a patient age 24.

The preputial half of the buttonhole is next cut across in the long axis of the penis. The two cut surfaces spring apart and in this way two lateral projections are produced which stick out on either side of the glans. The incision which was made to dissect up the urethra is now carried around the corona from the point which would have corresponded to the attachment of the frenum in normal cases to the centre of the coronal attachment of the lateral projections, leaving about 1 mm. of skin attached to the corona. From the termination of these incisions two others are carried out, one on each side, into the lateral flaps dividing the skin on the upper surface only. This may be easily accomplished by transfixing the flap with a sharp-pointed knife as shown in Fig 6. By a certain amount of dissection and a certain amount of stretching of the lax subcutaneous tissue the whole of this incision can now be opened up and in this way an irregular flap is produced on either side of the penis, which will be brought down to cover the raw surface from which the urethral groove has been dissected up. (Fig. 7.)

It is, perhaps, a little difficult to understand the method of formation of this flap, and indeed it would be impossible to construct it were it not that the tissue in this situation is extremely lax and can be stretched without division in almost any direction. One is reminded of the way in which a cook stones a raisin. The little shrivelled-up dried fruit has one side split open, and after the stones have been removed, easily becomes pulled into a couple of discs about the size of the grape before it was dried. One is doing somewhat the same sort of thing with these tissues. When the lateral flaps are dissected up they can be spread out to form a very considerable extent of skin

The position, therefore, at this stage is that we have a large raw area on the under surface of the penis, and at the other side a wide irregular flap with which to cover this in. The covering in process is commenced at the opening of the urethra. (Fig 8 ) The first stitch, passing from side to side, picks up the tip of the shrivelled remains of the urethral groove on its way. The succeeding stitches are passed in such a way that the flaps are held down towards the urethral opening. The stitch is passed, not only through the flaps, but picks up a small piece of tissue from the mid-line of the raw surface from which the urethra has been dissected up, so as to anchor the flaps firmly in this position. The sliding of the flaps downwards is obtained by placing the stitch-holes more widely apart in the skin flaps than in the bottom of the urethral groove This is continued until the whole of the raw area up to the tip of the glans has been covered in.

In this way the whole of this raw area on the under surface is epithelialised and the breadth of the organ increased very materially. A few stitches are inserted along the line of the corona and this will generally be found to entail a folding of the flap, leaving two raw edges which are then sewn together. (Fig. 9 )

As the result of the two stages of the operation which have now been performed, the penis is straight and very considerably broadened. This increase in breadth is due to the two flaps of skin which, originally derived from the prepuce, have now been transplanted on either side of the middle-line. It is now possible to perform Duplay's operation satisfactorily. One point should be remarked. The penis at this stage grows considerably, owing probably to its having been released from the flexed position.

### *Third Stage.*

After a lapse of three months the final stage of the operation can be undertaken. A rubber catheter of as large a size as will conveniently pass into the urethra is inserted for 2 or 3 inches. A stitch is then passed in the mid-line, through the tissues of the glans, and tied with a reef knot so as to make a loose loop. The ends of the stitch are then tied tightly round the catheter and cut short. By pulling on the catheter the organ is stretched out and the instrument made to lie along the course of what is to be ultimately the new urethra. Duplay's operation is then carried out with one or two minor modifications. Starting at the scrotal end an incision is made on either side of the catheter through the tissues, making two flaps of skin wide enough to meet easily over the instrument. (Fig. 10 ) These are joined posteriorly around the urethra, keeping about an eighth of an inch away from the opening It is as well not to continue the incision very far forward at first, but to prolong it towards the glans as the sutures are inserted.

It is also a good plan to make one of the incisions a little further away from the catheter than the other, so that the line of sutures does not fall strictly in the mid line and does not correspond exactly to the line of sutures in the skin. It is highly important for this line of sutures to use very fine needles and very fine catgut. There is no great tension on the stitch, and if holes are made by coarse sutures they very readily become fistulous tracts. 000000 catgut, and the finest curved intestinal needle that will carry it, should be used.

The first—that is to say, the most posterior—stitch is inserted as follows. The needle is passed through the flap (which should not be dissected up more than is absolutely necessary) from the surface, which is towards the catheter, to the raw side. (Fig. 11.) That portion of the tissue destined to line the urethra which lies posteriorly to the urethra is detached with a scalpel, and a stitch passed through this flap picking up a small piece of the subepithelial connective tissue but not penetrating the mucous membrane. The stitch is then completed by being passed from the raw to the epithelial surface on the other side. When the two ends of the suture are tied together it will be found that the epithelium is turned in both posteriorly and on either side, and that the knot of the suture lies in the urethral channel which is being constructed.

The succeeding stitches, which should be about one-eighth of an inch apart, are inserted in the same way—i.e., (*a*) epithelial to raw surface, (*b*) across the wound to the other side, (*c*) then raw surface to epithelium, and tied so that the knots are inside. As the sutures are inserted the lateral incisions are prolonged forwards bit by bit and sutured together. In this way the lining of the new urethra is constructed until the glans is reached. Then the incision should branch off shortly for about a quarter of an inch at right angles to the middle line. The object of this is to prolong the new urethra a little beyond the edge of the glans so as to allow for subsequent shrinking. (Fig. 12.)

FIG. 11.

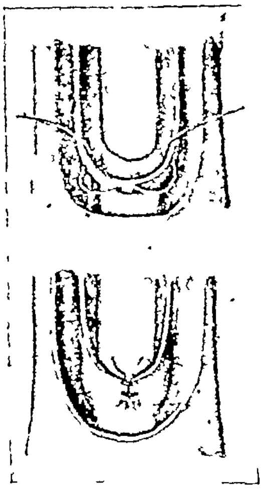


FIG. 12.

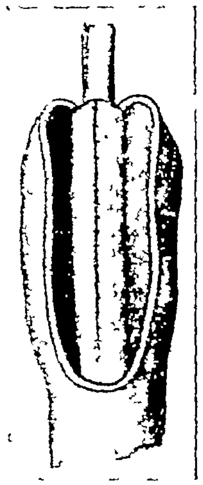


FIG. 11.—Lower end of the incision shown in Fig. 10. Catheter in the urethra. The method of passing the sutures is shown.
FIG. 12.—The urethral tube is completed.

FIG. 13.

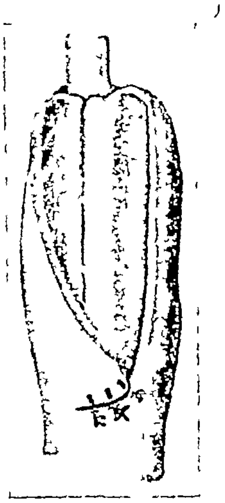
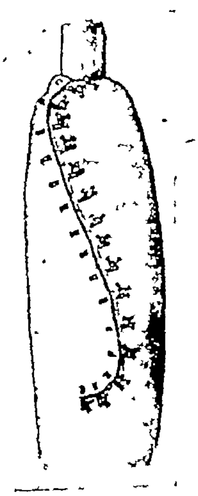


FIG. 14.



FIGS. 13 and 14.—The closure of the skin. The method of suture described in the text.

The skin is now sutured. If owing to the unequal size of the flaps, the suture line in the newly formed urethra lies a little to the left, the line of suture in the skin will lie a little to the right. The skin incision to be sutured will be found to be, not a long V, but rather a long U, and the first part of the incision should be closed and sutured so that the suture line for the first two or three stitches passes transversely across the penis—that is to say, one side is sewn to the bottom of the U. (Fig. 13.) If this has been done the line of sutures in the skin will not correspond to the deeper row of sutures, but cross them, usually in a sort of S-shaped line. (Fig. 14.) The suturing is continued until the whole of the cutaneous covering of the urethra has been formed. It is highly important in this, as in the preceding suture, to use the finest sutures possible. The needle that I employ is a No. 16 crewel needle, which is the finest I can buy, and the sutures are of "ophthalmic" silkworm-gut. It may be found necessary to dissect up the skin a little, but it must be remembered that the more this is done the greater risk there is of sloughing of the flaps. As a matter of fact the subcutaneous connective tissue is so lax that practically no dissecting or undercutting is necessary.

The vertical mattress stitch which I advocated several years ago is a great improvement upon the ordinary interrupted stitch. The needle is inserted about a quarter of an inch from the cut edge of the skin, passing from the cutaneous to the raw surface, picking up as much of the subcutaneous tissue as possible, then it is passed into the opposite flap, emerging on its cutaneous surface. The needle is then brought back, picking up the extreme edges of the wound as lightly as possible and the suture tied. In this way the epithelium is accurately approximated and the subcutaneous tissue also brought together, obliterating dead space to a great extent. By this method it is also possible to get a good grip of the tissues without sacrificing accuracy. The catheter is now removed.

The wound is then dressed and the patient returned to bed. As a dressing in these cases I have usually employed boric lint which has been boiled in boric lotion. Strips of this are wrapped round the penis and the whole covered in a square piece of the same material. A piece of mackintosh is laid over the lint and the child is pinned up with an ordinary square. Whenever the child passes water the parts are bathed up and the dressing changed.

After the first two stages the child experiences but slight inconvenience. The parts are slightly sore but the patient makes but few complaints. After the third stage the passage of urine for the first time along the new channel is a little painful and it is sometimes difficult to make the child do it. However, a little persuasion on the part of the nurse has always overcome the difficulty and I have never had to pass a catheter, a proceeding I should be loth to carry out for fear of damaging the suture line.

Many cases heal up straightaway, and in all cases the glandular portion of the urethra has healed by first intention. Since I have employed the vertical mattress stitch, and the exact technique of the suture of the skin which I have here described, my results have improved from the point of view of the healing of the wound. But in several cases I have had small failure of healing, rarely larger than would admit a probe, and these have been closed at subsequent operations. Usually I have succeeded at the first attempt, but I have had to make more than one attempt to close a fistula. I have not met with any case in which I have abandoned a fistula as incapable of being closed.

To close a fistula an incision is made round the opening; the skin retracts leaving a small raw area, in the middle of which the mucous membrane of the new urethra can be seen. If the opening into the mucous membrane is of any size it is easy to pass the sutures in the manner already described so that the knots come to lie inside the urethra. If, however, the opening is small, or when one arrives at the insertion of the last stitch, the following manœuvre is useful. (Fig 16.)

FIG. 15.

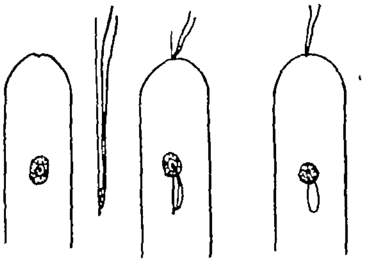


FIG 15.—The closure of a fistula. The method of suture described in the text.

Thread a long needle with fine silkworm-gut and pass it, eye foremost, from the meatus through the fistula, seize the thread, and withdraw the needle. Next, holding the loop out of the way towards the glans (Fig. 16) pass the suture in the manner already described—i e., from mucous membrane to raw surface and thence again to the mucous membrane; tie it. The knot, even though the suture has been passed correctly, will usually not fall back into the urethra, but by threading its ends through the silkworm-gut stitch these can easily be drawn into the urethra. The skin can be closed by turning a small flap of skin over the raw area. It will not be found satisfactory to simply pare and suture the opening.

In none of these cases have I had any clinical sepsis, although it is, of course, almost certain that such wounds do not remain aseptic from the bacteriological point of view. I have never found there was any need to perform either suprapubic cystotomy or perineal drainage of the bladder. These operations are by no means trivial and must inevitably leave the bladder a little less free, and perhaps the seat of a certain amount of infection. I therefore deprecate strongly the advice given by certain surgeons that suprapubic cystotomy should be undertaken in all these operations. It is an operation not devoid of risk and is entirely unnecessary. I have found that it is better not to leave a catheter tied in.

FIG. 16.

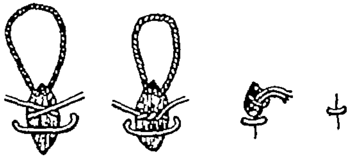


FIG 16.—Enlarged figure of the fistula to show how the knot of the suture is pulled into the urethra.

Beyond the actual fashioning of the flaps it is my belief that success depends upon accuracy of sewing, and that this in its turn depends upon the use of very fine needles and sutures. The ordinary instruments that are used for abdominal section and most major operations are as inapplicable for these cases as they would be for ophthalmic surgery.

## FINAL RESULTS.

In the successful cases, when healing is finished, the meatus lies at the tip of the penis looking slightly upwards (Fig. 17), and the general appearance is that of a child who has been carelessly circumcised, a lot of redundant mucous membrane being left. At one time I thought it might be worth while to remove this at a subsequent operation, but examination of several of my patients a good many years after the operation had been completed proved that the loose tissue is taken up in the process of growth so that in adult life the child looks as if he had been circumcised, not clumsily but neatly. The disappearance of this redundant preputial tissue is very clearly seen by comparing Fig. 18, which shows the result of this operation soon after its completion, with Fig 10, which shows the patient at the age of 18.

The operation which I have just described is appropriate for all degrees of the deformity, even for the perineal type. Many of these cases are mistaken for females, the penis being but little larger than a clitoris. I am strongly of opinion, however, that if these cases were operated upon early in life —for example, at the age of 4 years—the penis, released from its flexed position, would grow considerably.

I have operated upon two cases of mistaken sex successfully. I am indebted to Dr. Gutch, of Ipswich, for the case shown in Fig. 20 This patient passed the first 14 years of his life as a girl, but the descent of the testes, producing a swelling in the groin, revealed the true sex. Fig. 21 shows the appearance of the external genitalia, the prepuce is held up, and a catheter is passed into the opening of the urethra.

I operated in exactly the way which I have described above, making first a buttonhole in the prepuce, and then, after the passage of three months, freeing the urethra and turning inwards the flaps of skin. The presence of labia minora was a help, as these provided additional tissue at the sides. I did one thing, however, which is not necessary in the lesser degrees. At the root of the penis there was a fold of skin corresponding to the skin which so often appears between the labia majora in girls. This I divided transversely, sewing up the wound so made, in the long axis of the penis (like a pyloroplasty). This gave an additional length to the penis. Three months later I completed the operation and constructed the urethra in the usual way. I had some trouble with fistulæ, but these were closed a few weeks later. The final result is shown in Fig. 22. The penis is straight with a terminal meatus. Under the anæsthetic towards the end of his treatment he had a partial erection in which the penis measured 2¼ inches in length. In the flaccid condition it is long enough for him to pass his water in the usual way. Psychologically he is a normal boy.

Fig. 23 shows the result in a child, aged 0, in whom the urethra opened half way down the penis. The organ is quite normal and is, indeed, rather large for his age. Fig 24 shows the result in a case who was operated on rather later than most of the others—namely, when 14 years old. At the time the photograph was taken he was 24 years old. He has a penis which is perfectly normal and was not even noticed by the examining medical officer when he was called up for service in the war.

These cases are not exceptional, but usual with this procedure, and I believe that similar good results could be obtained in practically every case.

# RIGHT ILIAC FOSSA PAIN.

*An Opening Paper read before the Medical Society of London on Feb. 8th, 1926,*

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Nearly 19 years ago, on April 22nd, 1907, our President opened a discussion in this room on "Surgical Affections of the Right Iliac Fossa which Simulate Appendicitis."[1] His opening remarks and the subsequent discussion were confined practically to acute conditions, and the ground was thoroughly covered except that two or three disorders which we now recognise as liable to diagnostic errors were not referred to. I may mention the abdominal symptoms in chest troubles, the acute pyelitis of pregnancy, and perforated duodenal ulcer. I shall exclude from my remarks any recapitulation of matters already dealt with in that discussion, and confine what I have to say to less acute and to chronic conditions. And I do this the more readily because I believe that acute conditions are much more certainly differentiated, and that even if operation is performed with a faulty diagnosis, the operation is probably essential and the real disorder is discovered and remedied. In chronic cases the outlook is very different, and if diagnosis is not very exact, and if the correct treatment is not instituted, not only is there a failure to cure, but the patient's sufferings may be aggravated.

Although only some 25 years have passed since it was first suggested that chronic inflammation of the appendix might be the cause of continued abdominal discomfort and ill-health, the idea so seized on the imagination of the profession that even to-day it is practically impossible for any of us to avoid thinking of the appendix in every case when a patient comes to consult us for right iliac fossa pain. It was Sir Frederick Treves who was really responsible for putting the idea into our heads. In the Cavendish lecture on Appendicitis, delivered before the West London Medico-Chirurgical Society,[2] he says:—

> "There is a third class of case, abiding pain in the right iliac fossa which may continue for months and may or may not be associated with acknowledged attacks of appendicitis. . . . . These patients are never well. They are the subjects of unending digestive disturbances, of colics, of constipation, and of occasional severe pains. There is often tenderness in the right iliac fossa with a sense of weight and dragging. . . . ."

He goes on:—

> "Removal of the appendix is also to be recommended in chronic appendicitis in those examples in which there are no actual attacks but in which there is abiding discomfort in the right iliac fossa with exacerbations of uneasiness."

It is true he qualified this by saying that "the removal of the appendix is not a panacea for all ills, nor even for all those manifold pains that seize upon the lower segment of the abdomen," but I hope I shall be able to show you that his third class of case is not appendicitis at all, and that treatment by removing the appendix will fail in a high proportion of cases.

### *Muscle Strain as a Causative Factor.*

One of the common causes of right iliac fossa pain is muscle strain, and it is seen in two classes of patient, the young school-girl and the middle-aged athletic man who is giving up his sports and beginning to put on weight. The school-girl strains her oblique muscles owing to a vigorous pursuit of net-ball or lacrosse (both games entirely unsuited to young girls, as they demand considerable exertion with the arms held above the head), the man's pain is due to a commencing inguinal hernia. The girl's pain may easily be diagnosed as appendicitis, as there is often tenderness on palpation. The removal of the appendix in such a case might effect a cure, as it would prevent her playing those games for the rest of the season, but it is rather a drastic method of securing rest for tired muscles.

### *Causative Factors in the Urinary Tract.*

A frequent cause of right iliac fossa pain is some trouble in the urinary tract. A stone in the ureter is, perhaps, the most likely to be overlooked. I am constantly reminded of the possibility by the fact that I have upon my desk at home a silver inkstand suitably inscribed, which was presented to me years ago by a grateful patient after I had removed his appendix for what I thought good and sufficient reasons. He went for a sea-voyage to convalesce, and passed a very small ureteric stone which he sent to me with a cheery letter. It is said that a ureteric stone should always be recognised, because the pain is unilateral, there is often frequency of micturition, the urine may be abnormal, and the stone is discoverable by the X rays. But all the same mistakes occur, and I can show you the X ray of a large kidney stone which gave symptoms leading to the removal of the appendix. It is sometimes very difficult to differentiate by the X rays between ureteric stone and tuberculous mesenteric glands without passing a ureteric bougie, not always a simple task in a child. R. F. O'Neill[3] stated that 25 per cent. of the patients in the Massachusetts General Hospital with ureteral calculi had already had operation on the appendix or other abdominal organ before a correct diagnosis was made. Perhaps we shall hear what the proportion is in this country.

### *Tuberculous Mesenteric Glands.*

Another cause of right iliac fossa pain which may lead to errors in diagnosis is tuberculous glands in the mesentery. I read a paper before the Medical Society on this subject in 1918[4] and tried to lay down a definite symptomatology which, I believe, has been now generally accepted. Since that date I have seen many more cases, and I do not think that further experience has led me to modify in any way the views I expressed at that time.

### *Tumours of the Colon.*

As I have something to say about Treves's third class, I will merely refer shortly to tumours of the colon and their effect in causing right iliac fossa pain. There will, of course, be those cases of a tumour of the right colon, whether it be tuberculous or cancerous. Ileo-cæcal tuberculosis has been admirably dealt with before the Medical Society by Prof. Hartmann in December, 1906,[5] and so complete was his study of the subject that this presentation, though made 19 years ago, is still accepted as the last word on this subject. Both this disorder and cancer of the right colon give rise, in addition to right iliac fossa pain, to a tumour which is in close relation with the anterior abdominal wall and is therefore easily detected; but cancer in the left colon often gives rise to right iliac fossa pain owing to back pressure and distension of the cæcum when the growth itself cannot be felt. Pain in the right iliac fossa with a distended cæcum in a constipated patient over 50 should always make one suspect a stricture in the left colon.

### *Right Iliac Fossa Pain of Obscure Ætiology.*

I will not refer to certain other causes of right iliac fossa pain, such as colitis, diseases of the spine, locomotor ataxy, and tumours of the spinal cord. Let me discuss these obscure and difficult but very numerous cases which may be included under Treves's third class. It is not too much to say that cases of this condition can be found in every medical and surgical out-patient clinic on any day, and they represent an enormous amount of suffering and disability and their cure is still a problem. The sufferers are generally women between the ages of 20 and 40. They are of spare build and have a characteristic carriage due to certain skeletal defects.

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[1] Med. Soc. Lond. Trans., xxx., 259.

[2] Brit. Med. Jour., 1902, i., 1589.

[3] Jour. Amer. Med. Assoc., lxxvii., 418.

[4] Med. Soc. Lond. Trans., xli., 220.

[5] Ibid. xxx., 334.

The head is carried forward, there is slight dorsal kyphosis, the ribs are close together and form an over-acute angle with the rib cartilages, resulting in a flat, narrow chest with a reduced lower outlet. The lumbar concavity is abolished, and the sacrum articulates with the spine almost in a direct line instead of at an angle of 30°. They complain of constant dragging pain in the right iliac fossa, increasing as the day goes on and relieved by recumbency. They have constipation, flatulence, a poor appetite, loss of energy, and symptoms of nervous instability. They complain of joint pains, of neuralgia, of headaches, and nausea. Long ago Moynihan ungallantly divided women structurally into tigers and cows. These are the tigers, and very poor tigers they are. The abdominal wall is poorly developed and many points of tenderness are found in the abdomen, the right iliac fossa is especially sensitive, and often the cæcum is too easily palpable and the kidneys are frankly prolapsed. X ray examination after a barium meal shows ptosis of the stomach and large bowel with delay in emptying. Many of these cases when first seen have already had the appendix removed without relief.

Now what is the cause of right iliac fossa pain in these cases? Obviously it has to do with posture, for it is relieved when the patient lies down. There are two structures in the area which are more mobile than they should be, the kidney and the right colon. Which is it? A good many years ago a mobile kidney was looked upon as an object for attack, but one rarely hears now of nephropexy, an operation that at one time was frequently done. Why has it been abandoned? I think the answer must be that it was realised that the kidney was only one among many displaced organs, and that fixation of this one organ did not bring relief. Is it, then, the right colon? If we examine the right colon in these cases we will find one of two conditions (probably stages in the same condition), either a thin veil of highly vascularised membrane stretching from the parietal peritoneum across the right side of the mesocolon on to the intestine, or a tougher membrane situated rather higher up between the cæcum and the hepatic flexure which may constrict the colon and even bind the ascending colon and the first part of the transverse colon firmly together. The cæcum itself is free. Is it possible that the thin membrane in the first case is sensitive when dragged on by the mobile colon in the erect posture, or that the thicker membrane will, in the second case, so constrict the lumen of the ascending colon when the patient is erect that the cæcum becomes distended and that pain results from spasm of the cæcal musculature in the effort to empty itself? And what of the appendix? Does it show signs of back pressure? Is it distended? Not at all. The appendix is commonly rather small and atrophic and free from adhesions. The cæcum itself is changed. It is thin, bluish in colour, and its walls show microscopical changes. But would these alterations cause pain? There is often a triangular-shaped membrane in these cases on the right side of the mesentery of the ileum just proximal to the ileo-cæcal junction, which may be sufficiently developed to constrict or hamper the movements of the lower ileum. Is this drag on the ileum the cause of the pain? The only answer to these questions is that operations to release these bands and to fix the ascending colon have not met with the success they should have had if they were the sole cause of the trouble.

### *Differential Diagnosis of Chronic Appendicitis.*

But least of all has success attended the removal of the appendix. As long ago as 1919 Connell[6] gave an account of 87 cases who had had the appendix removed for pain in the right iliac fossa without relief; 73 of these cases were women; general ptosis was present in 80; 60 relapsed within 12 months, and of 27 who were subjected to a second operation only 9 showed any improvement. In 1921 Dr. H. W. Bettmann,[7] of Cincinnati, in a paper on Diagnostic Errors leading to Uncalled-for Appendectomy, drew so lurid a picture of the after-results of the operation that THE LANCET had a leading article on it.[8] His conclusions were that the majority of those failures were due to faulty diagnosis, resulting from want of care in examination, and that there was too great a tendency to consider that a case should be operated upon if medical treatment did not effect a cure. While he agrees that the great majority of these removed appendices showed microscopical evidence of disease, from the patient's point of view a clinical cure is more important than the removal of a diseased organ. I think that we will all agree that there is such an entity as a relapsing appendix where you get a history of one or more severe attacks with minor repetitions divided up by intervals of complete health, but is there such a condition as latent appendicitis, and how can it be recognised? I believe it is going too far to say that appendicitis should never be diagnosed unless there has been an acute attack, but we must dismiss from our minds the idea that chronic appendicitis can be diagnosed by right iliac fossa pain alone.

The true symptoms of chronic appendicitis are those of the so-called appendix dyspepsia. The pain is felt in the epigastrium or umbilical region, it is excited by taking food—and particularly some kinds of food—and it is never relieved by recumbency. Nausea is a very common symptom, indeed it is more common in appendix dyspepsia than in any other chronic indigestion. There is often an associated pain in the right iliac fossa, but this is never the only symptom. Nutrition is not impaired nor is there loss of appetite, nor, as a rule, constipation. This picture is in strong contrast to the other type where there is constipation, loss of appetite and energy, deficient nutrition, certain signs of nervous instability, and constant dragging pain in the right iliac fossa relieved by rest. One must not, of course, be carried too far in a desire to explain these dyspepsias as due to appendicitis, yet it is a common thing for every surgeon to be called upon to operate on gastric and particularly duodenal ulcer, and sometimes for gall-stones, in patients who have had their appendix removed without relief. One source of error is that some surgeons remove the appendix through a minimal incision so that there is no chance of examining other organs. I am sure that if there is any reasonable doubt about the diagnosis it is better to open the abdomen in the epigastrium so that the stomach, duodenum, and gall-bladder can be thoroughly examined. It is quite easy to remove the appendix through this incision.

### *X Rays in Diagnosis.*

Now one word about the value of an X ray examination after a barium meal. As a means of diagnosing appendicitis I believe it has little value. I do not think the radiologists themselves are agreed as to whether visualisation of the appendix shows that its peristalsis is so altered that it cannot eject the barium and therefore the appendix is diseased, or whether failure to visualise the appendix shows that the lumen is so obstructed that barium cannot enter and therefore the appendix is diseased. I am sure that tenderness on pressure on the visualised appendix is open to misinterpretation as it overlooks the effect of pressure by a heavily leaded glove on the eleventh nerve. And with regard to ptosis, we must remember that Dr. Ryle has proved most definitely that all ptosis is not pathological. But with these reservations we must admit that X ray examination is of the greatest assistance in the diagnosis of the causes of right iliac fossa pain and is, indeed, invaluable.

I will conclude by saying that in my opinion pain confined to the right iliac fossa should not even be considered as due to appendicitis, especially in the absence of a previous severe attack, until the most painstaking investigation has disproved other possibilities.

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[6] Jour. Amer. Med. Assoc., lxxii., 335.

[7] Ibid., lxxvii., 1216.

[8] THE LANCET, 1925, i., 137.

# CŒLIAC DISEASE: ITS DEFINITION AND DIAGNOSIS.

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To give an entirely satisfactory definition of cœliac disease will not be possible until we know the actual cause of its essential feature, the mal-absorption of fat; but this is not to say that the definitions in use could not be improved. To my mind they err both in what they put in and in what they leave out. They are apt, for instance, to stress *diarrhœa alba* as the diagnostic sign of the disease. Such degree of emphasis is too great, for this symptom may be absent, as in the non-diarrhœic type I have described,[12] and in the classical (diarrhœic) type it only recurs from time to time. In this way there tends to arise the misconception that cœliac disease is one which shows periods of activity and periods of quiescence, whereas in reality the disease remains stationary for many years and the severity of its symptoms depends upon the amount of fat allowed in the dietary. This misconception is further encouraged by the use of the word "relapse" in definitions of this disease. It is no more accurate to speak of relapses here than in a case of diabetes; in either case it is a faulty diet which causes the renewal of symptoms without any necessary change in the disease itself.

Thus far I think I shall carry with me those who have carefully watched cœliac cases, especially if they have controlled their observations by repeated fæcal analyses. But I am anxious to go a step further and to gain acceptance for a definition of the disease which shall aim at excluding certain conditions to some extent simulating it. My point is that the term cœliac disease should be restricted to those cases which show, as the primary cause of all their symptoms, the typical mal-absorption of fat. The purposes of the present paper are, first, to propose such a definition for the disease, and secondly, to mention what other conditions may simulate it and how they may be distinguished from it clinically. I have previously discussed this second matter from the pathological standpoint.[10]

*History.*—It may be helpful to glance back at the history of the disease[11] for a moment when it will be easily understood how some of the confusion as to what is and what is not cœliac disease has arisen. Described originally by Gee[7] in 1888, it was renamed "acholia" by Cheadle[3] in 1903. Both these authors regarded it as a digestive fault rather than as an organic disease, and this view has been maintained, for the most part, by English writers since. In Scotland Bramwell[2] published a series of papers from 1902–15 on some cases of what he called "pancreatic infantilism." His cases were ultimately accepted in England as instances of cœliac disease. Again in 1908 cœliac disease was rediscovered; this time by Herter[8] in America. He regarded his cases as due to a chronic enteritis and named the condition "intestinal infantilism." Not unnaturally it took some time for English physicians to realise that both Bramwell's and Herter's cases were the same as those originally described by Gee, and longer still for this fact to reach America and the text-books. Of recent years American writers have paid us the compliment of adopting the English title, but in the meantime cases of chronic enteritis and of pancreatic disease had been described by various authors and included under the title of "cœliac disease." It is largely in the hope of clearing away these misconceptions that the present paper is written.

*Definition.*—I suggest the following definition: Cœliac disease is a digestive disorder arising in infants and young children who show no evidence of chronic intestinal or other organic abdominal disease; it is characterised by a persistent mal-absorption of dietetic fat which causes large stools containing an excess of split fat, enlargement of the abdomen, lack of growth, and other symptoms.

*Differential Diagnosis.*—The characteristics of cœliac disease which are of most value in diagnosis are as follows: (1) the abdomen is enlarged but shows no signs of organic disease; the buttocks are often peculiarly small; (2) except in severe cases in very young children, the abdominal wall is not conspicuously wasted; (3) with the same exception general wasting is not so severe as is the lack of growth—the weight-for-age is much below normal, the weight-for-height is nearer the normal; (4) the excess of fat in the stools shows that fat wastage is out of all proportion to that of other foods, and it persists when the rest of digestion is normal; (5) on a strictly low-fat diet the amount of fat in the stools remains comparatively high, usually well over 15 per cent. of the dried fæces; (6) the fæcal fat is invariably well split, the neutral fat being usually much below 25 per cent. of the fæcal fat. The last three points display the essential features of cœliac disease.

## I. *Diarrhœic (Classical) Type.*

This is the well-known variety of cœliac disease in which the patient passes large, pale, unformed, and offensive motions containing a great excess of fat (40–80 per cent. of the dried fæces), chiefly in the form of fatty acid crystals. The presence of this fat is liable to set up from time to time signs of intestinal irritation such as mucus in the stools. Careful watching of this type of cœliac disease will soon convince one's mind that these signs are transient, and definitely secondary to the failure in fat absorption.

The diagnosis of this type of cœliac disease may be discussed under various headings.

1. *Rickets.*—The catarrhal diarrhœa of rickety children is usually easily distinguished from the fatty diarrhœa of cœliac disease. In it the fat-loss is neither so excessive nor so persistent. Small children with cœliac disease may show the slighter signs of bony rickets, and at about the age of 7 "delayed" rickets may develop. There is also the well-known association between tetany and other spasmophilic signs in some cases of cœliac disease. But taking the condition as a whole cœliac children escape the grosser forms of rickets in a way which is on theoretical grounds remarkable.

2. *Tuberculosis.*—Abdominal tuberculosis may produce fatty diarrhœa in two ways: (*a*) by inflammation and ulceration of the intestine, and (*b*) by lacteal obstruction due to the presence of tuberculous glands. Both of these will be discussed later.

3. *Chronic Enteritis* (*Enteritic Infantilism*).—That cœliac disease is not due to a chronic enteritis I have argued elsewhere.[14] The difference between the two conditions is quite clear. In cœliac disease there is first a failure in fat absorption, as a result of which may arise a secondary and transient intestinal catarrh. In chronic enteritis there is a failure in the digestion of all sorts of foods, and the intestinal hurry and disease of the intestinal wall may be sufficiently severe to cause an excess of fat in the stools. The most obvious clinical proof of the truth of this is the different lines of treatment in the two conditions; the fat-free diet in the one, and the low, easily digested diet in the other.

Thus the recognition of chronic enteritis proceeds along such lines as these: The wasting of the patient is more severe than the lack of growth. The abdominal wall is usually thinned, and evidence of disease within may be felt, such as enlarged spleen or glands, or thickened intestine. The stools tend to show the presence of mucus and perhaps blood; the digestion of all foodstuffs is impaired, that of the fat with, and not out of proportion to, the rest. As the enteritis subsides so fat digestion improves and does not persistently remain defective as in cœliac disease. Finally, on a low-fat diet the percentage of fat in the stools drops to a lower figure than in the true cœliac case. It must, however, be noted that in some of the cases of persistent enteritis a secondary pancreatitis may develop, as in instances reported by

Poynton[20] and Still.[22] Presumably a pancreatic steatorrhœa might arise from this cause.

Some examples of severe and persistent enteritis will show a distinct degree of stunting of the growth. As Herter has already used the term "intestinal infantilism" for cases which were in reality examples of cœliac disease, I suggest that, if a title is needed for the group I am here discussing, the term "enteritic infantilism" would be accurate and clear beyond dispute.

The following types of chronic enteritis may give rise to difficulty in diagnosis:—

(*a*) Tuberculous enteritis. This can usually be distinguished from cœliac disease with fair ease by the evidence of enteritis in the stool combined with the presence of other signs of abdominal tuberculosis.

(*b*) Chronic enteritis of the dysenteric type. This group may show a clinical picture resembling cœliac disease rather closely; yet the essential characteristics of persistent enteritis are present and enable the distinction to be made between the two separate conditions. The following instance gives the salient features of this type:—

F. R., girl, aged 9. A long history with indefinite onset of diarrhœa with watery motions of varying colour, wasting, and failure to grow. In height she was 3½ in., and in weight 13 lb. below the average for her age. She was in hospital for three months, treated by colon lavage and bismuth and opium. Her abdomen was large; the spleen enlarged under observation. The stools contained mucus, pus, and blood; no true dysentery organisms could be found. At one time the motion appeared fatty, suggesting cœliac disease, and on analysis showed 30 per cent. of fat; but a later analysis showed only 5·8 per cent. Urinary diastase was equal to 10. She had many relapses with blood and pus in the stools, and was ultimately discharged in a quiet phase, having gained no weight. She died at home four months later.

Both Poynton[20] and Still[22] have published fatal cases seeming to me to belong to this type, which is evidently a much more fatal disease than is cœliac disease. In both these cases post-mortem examination revealed not only chronic enteritis but chronic pancreatitis secondary to it.

(*c*) Chronic enteritis due to *Lamblia intestinalis*. This infection has hardly met with the recognition it deserves as a cause of chronic diarrhœa in children. It may produce a slight deficiency in growth. The abdomen is often prominent but the general nutrition usually remains fair. The stools show, in addition to the lamblia cysts, much undigested food and mucus, without traces of blood. The amount of fat in the fæces may be above normal, but does not rise to the figures found in the diarrhœic type of cœliac disease. In a series of my cases of lamblia infection the percentages of fat in the dried stools were 25·6, 23·8, 24·0, 17·2, 21·8, 21·6, 10·6.

In these cases, then, a history of persistent diarrhœa with occasional pale stools and a tendency to diminished growth may very well suggest a diagnosis of cœliac disease. Indeed, I have known specimens of fæces several times sent for examination on this very supposition. Careful examination of the stool will clear up the difficulty, although I should mention that I have known two cases of cœliac disease to show a few lamblia cysts in their stools. I give two illustrative cases of lamblia infection.

K. J., girl, aged 12½. Diarrhœa started in 1917 and has persisted for eight years. Abdomen is large, growth delayed, colour good. Height = 51½ in. (normal about 56–7 in.). Weight in clothes = 61½ lb. Stool report: "Mucus, undigested food, lamblia cysts in very large numbers; does not look like a cœliac stool; fat = 17·2 per cent."

R. H., boy, aged 11. Diarrhœa since age of 3. At 9 he was first seen; he was then having four or more stools a day. He was 3 in. below the average height for his age. His dentition corresponded to that of a child of 7. The stool contained 10·6 per cent. of fat. At 11 years the diarrhœa was beginning to get less; two stools daily. He was growing more rapidly and had reached 58½ in. He appeared very strong and active; weight was 5 st. 12½ lb.

It will be seen that the lack of growth is far less striking in these cases than in the true cœliac group.

(*d*) Enteritis due to irritant poisons. Forsyth[5] has reported a case of severe fatty diarrhœa in an infant of 8 months which was apparently due to the presence of boric acid in the milk. The symptoms ceased as soon as the cause was recognised and pure milk used.

(*e*) Sprue. A recent discussion on sprue and cœliac disease[14] showed clearly that they are different entities. I need not say more here than that sprue is so rare in children as to be unmentioned, if not unknown; while cœliac disease has never been described as originating in an adult.

4. *Pancreatic Steatorrhœa.*—The stool of pancreatic disease is large, pale, offensive, and oily. It contains a great excess of fat, and its diagnostic feature is the distribution of the fæcal fat; a large proportion, over 25 per cent. at least, is in the form of neutral, unchanged fat. This shows itself in the stool, if present in large amount, as separated oil or grease which congeals on cooling ("butterstühle"); if in smaller quantities the neutral fat shows under the microscope as oil droplets. This sort of stool does not occur in cœliac disease; there the fat in the fæces is invariably well split. Pancreatic steatorrhœa is a rare phenomenon in childhood, especially if we look for cases in which pancreatic disease has both been recognised during life and verified after death. Several groups of cases are known.

(*a*) Congenital steatorrhœa. This is perhaps the best recognised entity. The first case was described by Garrod and Hurtley[6] in 1912, the second by the present writer and Perkins.[10] A fæcal analysis in a third case has been reported by Mackenzie Wallis,[24] and another example has been shown at the Section of Diseases in Children of the Royal Society of Medicine.[19] So far as I know these are all the cases as yet recognised. The condition starts from birth and is almost certainly due to an inborn absence of pancreatic lipase, the other functions of the pancreas remaining unaffected. It is noticeable that these cases do not seem to suffer from stunting of growth. This is one of the proofs of what I have urged previously (THE LANCET, 1923, ii., 1090), that lack of growth in cœliac disease is not due to a mere fat deprivation, but is a toxic effect.

(*b*) Acquired pancreatic disease in children may occur, as mentioned above, as a sequel to chronic enteritis. It has also been attributed to inherited syphilis.

(*c*) Pancreatic infantilism. It has already been stated that Bramwell's cases, described under this term, must be regarded as examples of cœliac disease. It should be emphasised that the author himself referred to other cases which he could not distinguish clinically from his pancreatic cases except that they failed to improve under treatment by pancreatic preparations; these he thought were probably of the type then recently described by Herter under the name of "intestinal infantilism." Nevertheless, there do appear to be cases of true pancreatic infantilism. Perhaps the clearest clinical evidence is shown in the case reported by Moorhead,[17] in which steatorrhœa of the pancreatic type started at the age of 18. Mumford[18] published one of apparently the same type, which, however, ultimately attained to a normal height. Rentoul's case[21] is perhaps less satisfactorily proved. In none of these was there any verification after death. Bramwell,[1] on the other hand, reported a post-mortem on a case in which no clinical history was obtainable. The subject was a woman aged 20 showing very definite infantilism. Autopsy revealed the presence of mitral endocarditis and chronic pancreatitis. It is only proper to add that no ovaries could be discovered.

(*d*) A peculiar case has recently been published by Clarke and Hadfield.[4] In it steatorrhœa of the pancreatic type appeared to date from birth and there was stunting of growth. An autopsy at the age of 4 years showed that the gland substance of the pancreas was atrophied to about one-twentieth of the normal although the islets remained intact. If this were truly a congenital case it is, so far as I know, unique.

5. *Lacteal Obstruction.*—Fatty diarrhœa has long been known to be produced by lacteal obstruction, although such a condition is a rare one. The one cause of such obstruction which is definitely known is the presence of tuberculous mesenteric glands. It is important to notice that such obstruction would exactly reproduce the fatty stools of cœliac disease. Just as in biliary obstruction (unlike pancreatic disease), so in lacteal obstruction, the fat in the stools would be mainly split fat. The diagnosis here would, therefore, rest mainly upon the recognition of tuberculous glands in the abdomen; if they were to be felt I should not myself at the present time regard the case as one of cœliac disease.

J. Ryle [22, 23] has recently put forward the suggestion that the symptoms of cœliac disease are due to lacteal obstruction. It is, however, abundantly clear that tuberculous glands, which are practically the only recognised cause of such obstruction, are not the cause of it in this disorder. For this statement I adduce the evidence from a series of over 40 cases of cœliac disease which have passed through my hands. Not one has shown evidence of overt tuberculosis in the abdomen or elsewhere, and this in spite of lasting invalidism in many instances; nor do autopsies, few though they are, discover such glandular lesions. It is not a rare thing to discover clinical evidence of tuberculous mesenteric glands, and it is impossible to imagine that it is always those which cannot be felt which should produce lacteal obstruction. Further, of the three cases brought forward by Ryle, two showed important differences from the ordinary type of cœliac disease.

If, then, we can set aside tuberculous adenitis as the cause of lacteal obstruction we are in great difficulties in suggesting any other condition, especially any infective condition, of the glands to account for the obstruction. It would have to be one which could produce, in some instances at all events, an apparently sudden obstruction of the lacteals which could last for many years and ultimately allow of great improvement in the absorption of fat; and, further, to do all this and yet never spread, even in tiny invalid children, to any organ in which it could be recognised clinically. Nevertheless, we must not forget that lacteal obstruction would give rise to the typical cœliac stool just as accurately as would the defective action of bile salts.

### II. *The Non-Diarrhœic Type.*

In this type [12] the symptoms are all milder than in the classical type. The enlargement of the abdomen, the lack of growth, the loss of appetite, and other symptoms can all be recognised, although of less severe grade. The chief difference between the two groups lies in the appearance of the stools. In the classical type, when severe symptoms are present, the stools are large, pale, unformed, highly offensive, and containing 40–80 per cent. of fat, chiefly in the form of fatty acids. In the non-diarrhœic type the stools are again larger than normal, but they are coloured, formed, not offensive, and contain 30–50 per cent. of fat, chiefly in the form of soaps. Similar stools are passed in the quiet stages of the diarrhœic cases. [9, 15]

In the diagnosis of this type I have found most difficulty arise in connexion with two groups of cases: (1) temporary over-feeding with fat; (2) chronic enfeebled digestion of all foodstuffs. The diagnosis may be reached with careful watching on the lines already given above, by a consideration of the essential diagnostic points in cœliac disease.

I desire to express my grateful thanks to my colleague, Dr. H. Perkins, pathologist to the Paddington Green Children's Hospital. The large number of fæcal examinations and analyses which he has made for me forms the basis of whatever may be of value in this paper.

*(Continued at foot of next column.)*

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### Cœliac Disease: References.

1. Bramwell, B.: Clin. Stud., Edin., 1908, vi., 175.
2. Idem: Edin. Med. Jour., 1915, i., 323.
3. Cheadle, W. B.: The Lancet, 1903, i., 1497.
4. Clarke, C., and Hadfield, G.: Quart. Jour. Med., Oxf., 1923–4, xvii., 358.
5. Forsyth, D.: The Lancet, 1919, ii., 728.
6. Garrod, A. E., and Hurtley, W. H.: Quart. Jour. Med., Oxf., 1912–3, vi., 242.
7. Gee, S.: St. Bart. Hosp. Rep., 1888, xxiv., 17.
8. Herter, C.: Infantilism from Chronic Intestinal Infection, N.Y., 1908.
9. Miller, R., Perkins, H., and Webster, J.: The Lancet, 1920, ii., 894.
10. Miller, R.: The Lancet, 1921, i., 743.
11. Idem: Brit. Jour. Child. Dis., 1921, xviii., 11.
12. Idem: The Lancet, 1923, i., 72.
13. Idem: Brit. Jour. Child. Dis., 1923, xx., 88.
14. Idem: Arch. of Ped., N.Y., 1923, xl., 88.
15. Idem: Trans. Roy. Soc. Med. (Child. Sect.), 1923, xvi., 22.
16. Miller, R., and Perkins, H.: Quart. Jour. Med., Oxf., 1920–1, xiv., 1.
17. Moorhead, T. G.: Dublin Jour. Med. Sci., 1920, cxlix., 1.
18. Mumford, A. A.: Med. Chron., Manch., 1908, xv., 48., 189.
19. Paterson, D.: Trans. R. Soc. Med. (Child. Sect.), 1923, xvi., 27.
20. Poynton, F. J., Armstrong, R., and Nabarro, D. N: Brit. Jour. Child. Dis., 1914, xi., 147.
21. Rentoul, J. L.: Brit. Med. Jour., 1904, ii., 1694.
22. Ryle, J.: The Lancet, 1923, i., 206.
23. Idem: Guy's Hosp. Rep. 1924, 1.
24. Still, G. F.: The Lancet, 1918, ii., 1694.
25. Wallis, M.: Quart. Jour. Med., Oxf., 1920–1, xiv., 86.
26. Discussion on Sprue and Cœliac Disease: Trans. Roy. Soc. Med., 1924, xvii. (Trop. Sect.), pp. 11-25.

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# FAMILIAL TELANGIECTASIA.

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Among the rarer diseases of familial incidence is a curious condition of which the features are summed up in the name multiple familial facial telangiectases. A number of families have now been recorded since Wickham Legg described the first in The Lancet of 1874.[1] The marked symptom of the condition is epistaxis, coming from the lesions in the nose or bleeding from similar lesions elsewhere. In 1865 Babington [2] described a condition which he called hereditary epistaxis which was very likely the same condition as Legg recorded nine years later, but he gave no description of any lesions. The following is the account of a family in which a number of its members show telangiectases.

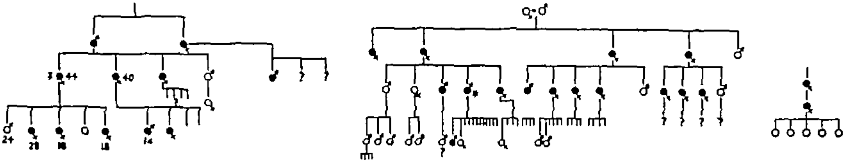
### *Clinical Records: First Family.*

The first member of the family I saw was a woman aged 44, who came to hospital with symptoms due to secondary anæmia. On examining her tongue one could see some eight little telangiectatic spots scattered over the dorsum. They were bright pink in colour, round, and varied from 1 to 3 mm. in diameter. There were several on the inner and upper surface of the lower lip. These were about the same size as those on the tongue or rather larger. One or two of the largest formed little dark purple blebs. Another was inside the left lower eyelid, and there were two under the finger-nails. Several were scattered about on the backs of the hands and wrists. With the exception of those on the lip all were small round pink spots. She said that she had first noticed the spots on her lip about five years ago, for they had been prone to bleed when she was eating. About this time also she had had a good deal of nose-bleeding. This had been sufficiently severe to send her to hospital. Lately she has been free from this, and no nævi are to be seen on the lower part of the septum. Other members of the family are also affected. She states that her father had a cluster of small telangiectatic spots around the nostrils and inside the nose. From these he often had bleeding.

She has four children living. The eldest, a man of 21, has one or two small nævi on the face, but has never had nose-bleeding. Her eldest daughter, aged 20, has small nævi on the lips and tongue like her mother. There is also one in her left eye. These have all appeared quite recently, and she has lately had a good deal of epistaxis. Apart from these she has had some spots on her hands and face for some time. The youngest daughter has several spider nævi scattered over the body; she has never had epistaxis and she says the spots come and go quite quickly. There are none on her face. The third daughter has no nævi.

The patient has two sisters. The elder has a few telangiectatic spots on the bridge of her nose; she has never had nose-bleeding. Of her four children, the eldest, a boy of 14, has two nævi on the nose, and the next, a girl, has a few on the face. The other two are free and none have had nose-bleeding. Her younger sister has had a good deal of trouble with nose-bleeding, which came on when she was about 18. She has had to have her septum cauterised. Her aunt, her father's sister, has small nævi all over her tongue similar to those on the patient. They are also present on her upper lip and round the nostrils and on her hands. Those round the nose have caused much bleeding for which she had to go to hospital. This woman has three children, one of whom, a boy, often has nose-bleeding. Lately this has been worse, and during the last five years small nævi have appeared on *his tongue and lips.*

The family tree shows the symbol dark where the individual has telangiectases. There are 11 members affected. Some are very slight lesions and have hitherto caused no trouble. In fact, one would hardly notice them unless one was on the look-out for them, nor would one attach any importance to them apart from the fact that their owners are members of a family in which they have a definite incidence, and that in some they have caused a great deal of trouble and discomfort.



First family

Second family

Third family.

In each family the asterisk (*) denotes the patient. ? = No information. The sex sign is shown in black in affected persons. Line of descent short when persons under age at which lesions appear

### *Second Family.*

A little time ago I described another family in which a number of members were affected with telangiectases.[3]

Here the original patient was a man of 48, who came to hospital with chronic bronchitis and emphysema and heart failure. He died a few months later. He had many telangiectases scattered all over both cheeks especially on the cheek bones. There were some over the eyes and on the nose and inside the nostrils. The spots consisted of spider nævi and many dilated capillaries joining them up. In places the dilatations appeared to involve small veins as they had the appearance of small dark purple blebs about 2 mm. in diameter. His mouth and the rest of his body were free. He had suffered very often from epistaxis. The cyanosis due to his cardiac condition made the lesions especially marked. The spots and the nose-bleeding first came to notice when he was about 23. He said that his mother and two of her sisters had similar spots on the face, as did also two of his sisters. They were beginning to appear on the face of his eldest son who was 23. All the members of his family who have the spots suffer from nose-bleeding, some of them very severely. As far as I was able to ascertain there are 15 members of his family who have telangiectases and epistaxis. Those affected are marked in black in the family tree.

A curious point about this family is the age at which the spots are first noticed or the nose-bleeding starts. Most of those affected first showed signs in the early 'twenties. They did not appear so early in life as is the case in a good many instances, and, moreover, they did not tend to appear later in life either. If the individuals passed the age at which the lesions usually came without their appearing, they seemed to escape altogether.

### *Third Family.*

The third family which I have come across has only two members affected. A woman of 55 came to hospital first with high blood pressure and arterio-sclerosis. She had a number of irregular spider-like nævi, mostly on the right cheek, but with a few also on the left. These had first appeared when she was 33. The telangiectases were mostly in the form of fine irregular vessels radiating from one central spot. Here and there were larger vessels, round, raised, and dark purple in colour. Since the spots first appeared she had a good deal of nose-bleeding. This had been worse lately, no doubt made worse by her general vascular condition, although it brought relief to her symptoms. She said that her mother had had similar spots on her face only very much more marked. They had come when she was about 45 and were accompanied with severe epistaxis. The patient's five children had all died young and she did not know of anyone else in the family affected. Her mother had been an only child and she was also.

### *Recorded Cases.*

A number of families in which this remarkable disease has occurred are now on record. Steiner[4] analysed most of the cases in 1917, and in 1921 a very full review of the literature was given by Goldstein.[5] He alludes also to a number of cases which have been recorded which gave no family history of the disease. He brought the total up to 31 families, to which another described by FitzHugh[6] in 1923 must be added. The three which form the subject of this paper make 35 in all. Sir William Osler wrote the first comprehensive account of the condition in 1901,[7] and a further article in 1907[8] about which time Parkes Weber] reviewed most of the cases previously published.[9]

### *Ætiology.*

Most of the families belong to the Anglo Saxon race. A few have occurred in the Latin races, one or two in the Teutonic and Scandinavian races, and some of the families have been Jewish. At first the disease was confused with hæmophilia by several writers. It seems likely that the marked secondary anæmia which so often accompanies the condition may have given rise to this idea, for in these circumstances the blood changes would make hæmorrhage more likely to occur and more difficult to stop. In some cases the delay in the coagulation time noted may also be due to this anæmia.

### *Pathology.*

The disease is due to a familial tendency for defects to appear in the small blood-vessels. The pathological changes were studied by Hanes[10] and Osler[8] who found dilated vessels, the walls of which were thin and deficient in muscular and elastic tissue. This condition renders hæmorrhage likely to occur on very slight injury. Such vessels would not retract effectively, and so bleeding would tend to be profuse.

The character of the lesions varies a good deal. One may see irregular dilated venules scattered more or less thickly in a sort of network or mat. Another type is the spider nævus where little vessels radiate from a central dot about the size of a pin's head. Others appear as tiny round pink dots, not more than 2 mm. in diameter as a rule. There are also little purple raised spots which look like little blebs and may be as large as a small split pea. The last variety may bleed very profusely when injured. They are distributed chiefly on the face, especially on the cheeks and nose. They occur very constantly on the septum of the nose, low down in front. They are often found on the mucous membrane of the mouth and tongue and less extensively on the rest of the body; here the hands and under the nails are the commonest places. In one case which came to autopsy a telangiectasis was found in the stomach, and there is evidence to show that they may occur on the brain. Bleeding chiefly occurs from the spots in the nose, but it not infrequently starts from the mouth during eating and sometimes from the face or elsewhere if a spot is damaged.

In the majority of cases there is a history of bleeding from the nose, starting in childhood. This is so in 40 out of 57 cases in which there is a definite account. Other persons show no sign of the disease until middle life. Often in childhood the spots are not at all conspicuous, and they become more prominent as the patient grows older. Epistaxis is then the only symptom. When the lesion appears later in life the spots appear on the face very often about the time that the patient begins to complain of epistaxis. Occasionally the spots are there but no epistaxis occurs.

### *Incidence and Transmission.*

In the 35 families reported, 237 persons have suffered from the disease. In 25 instances the sex is not stated, but of those where the sex is mentioned 104 are males and 108 are females. The disease thus affects males and females equally. The disease appears to be transmitted rather more often by females than males. It has been transmitted by the mother 53 times and by the father 38 times. For the most part the disease appears in each generation. Sometimes it appears to die out in one branch of the family, and occasionally a generation is skipped. This occurs definitely in five instances and there is a probability of it having occurred in two others. The disease is present in the grandparent, lies dormant in the parent, and reappears in the grandchildren. This has happened very probably seven times in 91 recorded transmissions.

### *Treatment.*

The only really effectual method of stopping the bleeding is cauterisation of the bleeding-point. Various drugs have been recommended with a view to increasing the coagulability of the blood, but it seems clear that they can do little when the fault is in the vessels themselves. Later they may be useful when there is marked secondary anæmia, for such a condition would tend to prolong the hæmorrhage when once it had started, thus setting up a vicious circle, as was pointed out by Parkes Weber.

### *Discussion.*

Apart from this disease, with its familial incidence, quite a number of cases are on record which resemble the cases in these families in every way except that there is no family history of the trouble obtainable. There is a possibility that some of these sporadic cases may be really instances of atavism, and that the disease has lain dormant in one of their parents, or even for more than one generation. Although nothing is known about the cause of this familial abnormality, telangiectases certainly do appear in association with a number of conditions. Sir William Osler pointed out their curious relationship to cirrhosis of the liver. They may appear quite suddenly in catarrhal jaundice, and disappear equally rapidly. Nævi are also frequently seen in the scars of X ray burns. They may appear on the face in Graves's disease. It is well known that alcohol tends to promote their appearance in some people, as does also exposure to the weather. The combination of these two factors was no doubt responsible for the complexion of some of the old London 'bus drivers. Here constant dilatation seems to have led to a condition of permanent ectasia. Possibly in the cirrhotic and jaundice cases the local action of a toxin on the vessels leads to degeneration of the walls and the pressure of the blood within them does the rest.

But quite apart from any of these associations there is a tendency for telangiectases to appear in people as they grow past middle age. The lesions in the sporadic cases always show themselves late in life, never in childhood as in the familial cases. The condition may, then, be arrived at perhaps through the action of toxins on the capillaries in the acquired cases or through some familial developmental error. In all the cases under review the lesions have been confined to the capillaries or small venules. There is, however, in some cases a history of the blood spurting from the spot as though a tiny arteriole were involved. One may draw a parallel between these local lesions of the smaller vessels and the extensive lesions which involve all the branches of some large artery, a cirsoid aneurysm. A cavernous nævus seems to be the same condition appearing in a large vein and its branches. All such changes may be found in one individual, as in a case which I reported[11] of a woman who showed a cirsoid enlargement of the arteries of the right arm with great dilatation of the veins of the hand. There was also a large capillary nævus on the left cheek. In the production of some cirsoid aneurysms no doubt a congenital defect in the vessels is the cause. Before the character of the lesion was recognised this disease was called hereditary epistaxis. Cases of hereditary hæmaturia have been recorded by Pearson[12] and Aitken.[13]

Hæmaturia does sometimes result from telangiectatic areas in the bladder and renal pelvis. A boy, aged 8, was admitted into King's College Hospital under Sir Watson Cheyne in 1901, with a two years' history of hæmaturia. There was a large nævus with warty excrescences on it on his thigh which sometimes bled, and on operation a similar nævus was found in his bladder. Is it possible that hereditary hæmaturia may result from telangiectatic lesions in the urinary tract? On the whole it seems unlikely. In none of the recorded families was there any history of bleeding except from the spots on the face. Hæmaturia is never mentioned. Although the lesions do sometimes appear in these families on the internal organs, it is quite the exception.

Reference may be made to an interesting family recorded by Libman and Ottenberg.[14] In this case it was one of hereditary hæmoptysis. In the families with nose-bleeding it is true that hæmoptysis may occur, but there are easily seen spots in the pharynx, or, as occurred in one case, on the epiglottis. In the family where hæmoptysis was the only symptom no lesions from which the blood might have come were seen, even with a bronchoscope. It is possible, of course, that the lesions are in the lung tissue.

The disease is of importance because of the serious inconvenience the epistaxis causes the patients and because of the grave secondary anæmia to which it may give rise. In three instances death has been due directly to the hæmorrhage. The severity of the hæmorrhage late in life is, no doubt, partly due to the general vascular changes and increase in blood pressure which are commonly present.

### *Conclusions.*

1. Three families are described which show multiple facial telangiectases. 2. The disease is due to a congenital vascular abnormality generally appearing in childhood. 3. The hæmorrhage tends to become more severe when the condition is complicated by severe anæmia or vascular disease. 4. The condition appears equally in males or females, but is transmitted rather more often by the females. 5. The disease may be latent in some generations and reappear later.

### *References.*

1. Wickham Legg: The Lancet, 1876, ii., 856.
2. Babington, B. G.: The Lancet, 1865, ii., 365.
3. East, C. F. T.: Proc. Roy. Soc. Med., Clin. Sect., 1924, p. 2.
4. Steiner, W. R.: Arch. Int. Med., 1917, xix., 194.
5. Goldstein: Ibid., 1921, xxvii., 102.
6. FitzHugh, T.: Amer. Jour. Med. Sci., 1923, clxvi., 884.
7. Osler, Sir W.: Johns Hopkins Hosp. Bull., 1901, p. 333.
8. Idem: Quart. Jour. Med., 1907, i., 33.
9. Parkes Weber, F.: The Lancet, 1907, ii., 160.
10. Hanes, F. M.: Johns Hopkins Hosp. Bull., 1909, xx., 63
11. East, C. F. T.: Proc. Roy. Soc. Med., Clin. Sect., 1925, p. 17.
12. Aitken: The Lancet, 1909, ii., 444.
13. Pearson: The Lancet, 1904, i., 91.
14. Libman, E., and Ottenberg, R.: Contrib. to Med. and Biolog. Research. Sir Wm. Osler, 1919, i., 632.

# CARCINOMA OF THE PROSTATE.

## TECHNIQUE OF OPERATION.

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UNTIL Young, of Baltimore, demonstrated that malignant disease of the prostate could be removed by a perineal operation no attempt had been made to extend the experiences gained in cancer surgery in other parts of the body to this region. Young's operation aimed at the removal not only of the gland, but also of the base of the bladder; but he was the first to admit that his after-results were unsatisfactory in two respects—namely, permanent incontinence of urine due to damage of the nerve-supply of the compressor urethræ, and the formation of a recto-vesical fistula.

The principles which underlie the operation I have devised differ in no material respect from Young's, but whereas he gained access to the tumour by the perineal route, in my operation the bladder is opened above the pubes and removal of the diseased tissues carried out under direct observation. The preliminary communication on this subject was made before the Section of Urology of the Royal Society of Medicine in March, 1924. During the succeeding 12 months further experience has enabled me to elaborate my original technique and shorten the time required to complete the operation.

### *Anatomy of the Region.*

A reference to the anatomy of the vesiculæ seminales and prostate is necessary in order to explain the raison d'être of my technique. The vesiculæ seminales may be described as a pair of convoluted organs situated at the base of the bladder between it and the rectum, and converging towards the upper pole of the prostate, to terminate as ejaculatory ducts. By their anterior surfaces they are closely approximated to the base of the bladder, and posteriorly to the rectum, the fascia of Denonvilliers and loose areolar tissue intervening. The upper ends lie against the ureters at the termination of their intravesical portions. The inner border of each vesicle is in relation to the corresponding vas deferens and its ampulla, with which it is united by a band of fascia. The vas deferens winds round the upper pole of the seminal vesicle to pass outwards to the lateral wall of the pelvis. Its relation to the ureter is variable. In the majority of cases it separates the ureter from the vesicle, but occasionally it takes a different course and, becoming hooked round the ureter, the vas lies between it and the bladder wall.

It is not necessary to describe the anatomical relations of the prostate gland, but, in order to appreciate the pathology of malignant disease in this organ attention must be drawn to the fasciæ which make up the prostatic bed, the *loge prostatique* of the French writers. This, for practical purposes, is well described by Denonvilliers, one of the first to study the subject. He describes an aponeurosis running from the anterior surface of the prostate to the symphysis pubis. The apex of the prostate is supported by the deep layer of the triangular ligament. On either side is found the so-called lateral aponeurosis of the prostate, which passes backwards from the rami of the pubis to join the rectum. Between it and the gland is cellular tissue. Separating the seminal vesicles and the prostate from the rectum there is the prostato-peritoneal fascia or fascia of Denonvilliers; this is attached below to the prostate and triangular ligament and united above to that part of the peritoneum which descends between the bladder and the rectum. By its posterior surface it is but loosely attached to the rectum, but by its anterior firmly fixed to the seminal vesicle and the true capsule of the gland. In the living subject I have observed that there is a band of fascia extending from the junction of the seminal vesicle and the prostate to the descending ramus of the pubes. This often contains a blood-vessel and, though hardly a ligament in the correct sense of the term, one may refer to it as such and give it the title of pubo-seminal.

### *Mode of Spread of Prostatic Cancer.*

Having drawn attention to these anatomical details it will be convenient, at this stage, to mention how, from the pathological standpoint, the fascia of Denonvilliers plays an important part in the spread of prostatic cancer. If a careful microscopic examination be made of the seminal vesicles with the terminal part of the vas deferens in a case of advanced carcinoma of the prostate, it will be found that the cancer cells spread out fan-like beneath the bladder from the parent mass. These cells pass along the lymphatic channels buried in the fibrous tissues which envelop the vasa deferentia and the seminal vesicles. In no case have I seen the glandular epithelium of the latter organs infected by cancer. Thus in theory the removal of the seminal vesicles is unnecessary, but in practice it is unavoidable. At the point where the fascia of Denonvilliers becomes attached to the peritoneum forming the most dependent part of the pouch of Douglas, the further progress of the migration of the malignant cells in this direction appears to cease, for the peritoneum acts as a barrier. The cells are, however, diverted towards the ureters which they embrace and stenose.

The pathology of carcinoma of the prostate is of absorbing interest, and in a subsequent communication will be dealt with in detail, but the purpose of this article is to draw attention to the advantage of a radical operation which will prolong life, and if undertaken in the early stages will make the eradication of cancer in the prostate as probable as in other organs.

### *Technique.*

The operation, for purposes of description, can be divided into two stages, the first stage consisting in the separation of the prostate from the surrounding structures, and the second the dissection and removal of all the tissues which form the base of the bladder as far back as the inter-ureteric bar and the anterior wall of the rectum. In both stages it is essential to have plenty of light in the bladder itself and to have the bladder wall well retracted. Headlights throw 80 per cent. of their rays on to the skin of the anterior abdominal wall and, unless very powerful, are unsatisfactory in bladder surgery. This is particularly true of lamps attached to the forehead. The best means of illuminating the bladder is to insert an electric lamp into its cavity. Such a lamp was devised by me a few years ago. This can be attached to the bladder retractor, and has proved to be reliable. Retraction of the bladder walls is readily accomplished by means of a self-retaining retractor of the Thomson-Walker pattern.

A good exposure of the internal meatus and bladder base can only be obtained if the patient is placed in the Trendelenburg position. The operating-table should be tilted to the right angle before the suprapubic incision is made, and not when the bladder has been opened. The circulation of elderly people is slow in responding to alterations of positions. When the bladder has been opened and the retractors inserted an incision is made round the internal meatus and with a blunt dissector the line of cleavage between the growth and fibrous capsule determined. This line of cleavage is quite definite, even in advanced cases, owing to the failure of the malignant cells to penetrate this capsule. Should the mucous membrane of the bladder base be thickened or actual malignant nodules be seen with the naked eye, the incision is carried back to the inter-ureteric bar, and a triangular area mapped out, the apex being at the internal meatus and the base between the two ureteric orifices. The next step consists in separating the prostate from the *loge prostatique*. As soon as partial mobilisation of the gland and its growth has been accomplished, with the aid of Duval's forceps, the mass is delivered into the bladder with its attachments to the base of the bladder and seminal vesicles still intact.

The second stage of the operation consists in the removal of all tissues anterior to the front of the rectum including the mucous membrane of the bladder base, if considered invaded by the disease. By pulling the prostate out of its bed the pubo-seminal ligaments are put on the stretch. These are then clamped and divided, thus permitting the scissors to be inserted between the anterior wall of the rectum and the fascia of Denonvilliers. With great care this fascia and the seminal vesicles are stripped off the loose fatty tissue which intervenes between them and the bowel. It is now advisable to search for the vas deferens, either on the inner side of the seminal vesicle or at its apex. Should the tissues between the seminal vesicles be infiltrated with growth the vas can only be isolated at the point where it comes into relation with the ureter. The variability of this relation, as already described, makes this part of the operation tedious and difficult, for ascending infection will follow a division of the ureter in its intramural portion. When the vas deferens has been isolated it should be ligated as near the brim of the pelvis as possible, and at the same time the glands in this region dissected out. Division of the vas allows the prostate, seminal vesicles, and surrounding tissues to be still further separated from the rectum. When this has been accomplished on either side all that remains in order to remove the whole mass is to divide the fascia of Denonvilliers at its attachment to that part of the peritoneum which forms the bottom of the pouch of Douglas. Button-holing the peritoneum need cause no anxiety provided the opening into Douglas's pouch is immediately closed by sutures. On the other hand, it is a serious mistake to button-hole the rectal wall. A recto-vesical fistula results, and though the patient may survive this complication and even live many months, his condition will be pitiable. One case in which this mistake was made survived 18 months. By the perineal route injury to the rectum is often unavoidable, by the suprapubic route it is due to carelessness. The operation is completed by inserting a Marion's tube into the bladder.

With the removal of the malignant growth a large, raw surface is exposed, the base of which is formed by the rectum and the sides by the torn edges of the bladder walls. As healing proceeds this cavity contracts, but after so extensive an operation the base of the bladder and prostate bed are also filled in with scar tissue which narrows the urethral outlet. In every case, therefore, subsequent to the closure of the suprapubic opening, the new internal meatus must be dilated at intervals with gum elastic or metal bougies. The alternative to this procedure is to give the patient a permanent suprapubic fistula. The immediate after-treatment differs in no respect from that usually practised at St. Peter's Hospital for the simple enlarged prostate.

### *Advantages of the Operation.*

The discussion of a surgical operation is incomplete without considering its suitability to the extent of the disease for which it is intended. This is especially true of malignant disease, one of the most difficult problems yet to be solved being the accurate detection of deep-seated metastases. Attention has already been drawn[1] to the difficulty of correctly interpreting the size of a growth of the prostate by palpation through the rectal wall. As a method of investigation to determine whether surgical removal of the malignant mass is feasible it is unreliable.

Palpation of the glands in the groins should be part of the routine examination, and their obvious enlargement, though not contra-indicating the major operation, increases its risk. Dissection of these can be postponed until three to six months have elapsed from the time of the prostatectomy. The cystoscopic appearance of the mucous membrane of the internal meatus and base of bladder is a most valuable guide in determining the extent of the disease. Gross infiltration by cancer cells in the regions indicated produces nodules, congestion, and œdema. If the growth has reached the inter-ureteric bar and is invading the muscle-fibres of the vesical portion of the ureters, ascending infection to the kidneys will occur and cause a failure of renal function. All the reliable methods of estimating the latter must, therefore, be carried out before it is decided whether the case is operable. Lastly, the assistance of the radiologist must be obtained to search for bone metastases. My views during the past 12 months have been somewhat modified with regard to the value of skiagraphy as a means of detecting all deposits in bone. In some cases they were only revealed post mortem.

By such an operation as I have described the danger of death from pyelonephritis, which is the usual terminal stage in unoperated cases, is banished, provided the ureter is not divided; but it must be admitted, as always in malignant disease, that metastases may occur even in the most favourable cases. My record of cases demonstrates, however, that a greatly improved state of health results from this operation.

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[1] Proc. Roy. Soc. Med., 1924, vol. xvii., pp. 43–52.

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# ABSCESS AND GANGRENE OF THE LUNG.

## REPORT OF TWO CASES, WITH A SHORT STATISTICAL STUDY.

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THE following two cases of abscess of the lung came under my observation recently. The opportunity has been taken to collate some statistics of cases of abscess and gangrene of the lung occurring in a large general hospital over a period of 25 years.

CASE 1.—J. M., a man aged 40, was admitted to the Middlesex Hospital under the care of Dr. A. F. Voelcker in June, 1923. He complained of pain in the right iliac fossa, extending back to the right lumbar region, which had been present for three days. Twenty years previously he had served in Africa, India, and Egypt as a soldier, with no serious illness except an attack of jaundice. He was healthy looking, with a good colour. The tongue was furred; temperature 99·6° F. There was tenderness in the right iliac fossa and right hypochrondrium, but no rigidity. Liver dullness was diminished. Movement of right chest was diminished, and the percussion note impaired over the right lower lobe. Tactile fremitus was lessened, the breath sounds weak, and a few medium bubbling râles were heard. Sputum was scanty and not offensive. Exploratory puncture was performed, and 10 c.cm. of a clear sterile fluid removed. Ten days after admission pleural friction was noted at the right base, the moist sounds were more numerous, and the sputum had increased in quantity and become muco-purulent.

Three weeks after admission signs of cavitation were noted in the posterior axillary line at the level of the seventh rib, and the percussion note over the right upper and middle lobes was now impaired, with deficient air entry. Orthopnœa was present, cyanosis, and clubbing of the fingers. X ray examination showed diminished excursion of the diaphragm on the right side and density in the right costophrenic sinus, above which was a clear area of lung surmounted by a dense rounded opacity, possibly an abscess. *Entamœba histolytica* cysts were found in the stool at this period, and a course of emetine hydrochloride was given.

The patient's condition gradually got worse, wasting, increasing cyanosis, and a more copious and offensive sputum being noted. In the third week of July an exploratory operation was undertaken by Mr. E. L. Pearce-Gould and a large abscess cavity in the lung was drained. The patient died a few hours later. Post mortem a large subdiaphragmatic abscess was found, communicating with a large abscess cavity in the lower lobe of the right lung. A healed duodenal ulcer was found, but no abscess of the liver.

The case is of interest in that the primary focus of infection was never definitely localised. It is possible that the subphrenic abscess arose from the duodenal ulcer, became encysted and eventually infected the lung.

CASE 2.—H. A. P., a man aged 43, of robust physique, was admitted to the Middlesex Hospital in March, 1921, with signs of consolidation at the base of the lower lobe of the right lung. He was treated with an autogenous vaccine of pneumococci. Later in the year he attended the out-patient department for a short period, when signs of pulmonary fibrosis were noted. In May, 1923, he returned to the out-patient department and gave a history of three severe attacks of coughing associated with severe dyspnœa and much thick sputum. He was admitted under the care of Dr. Voelcker in June, 1923. He complained of pain over the left upper chest, dyspnœa, morning cough, and expectoration. He had lost much weight since his previous admission, was pale, neither cyanosed nor dyspnoic, and had a temperature of 101° F. There was diminished movement of the left chest, percussion note was greatly impaired, and vocal fremitus much diminished over the left upper lobe. Air entry was very poor over this area, and coarse and medium râles were present; rhonchi over the remainder of the lungs. The sputum was neither offensive nor excessive; tubercle bacilli were not present. Five days after admission he was suddenly seized with a violent bout of coughing, sat up, became cyanosed, and within five minutes fell back dead.

Post mortem a large abscess cavity was discovered in the left upper lobe filled with a reddish-brown grumous material which was not offensive. No tubercles were seen and there was no evidence of pulmonary tuberculosis. Larger bronchi opened into this cavity, which was lined with a grey-green exudate. The surrounding lung tissue was firm and airless with much fibrous tissue. Here the original lesion was probably a broncho-pneumonia, fibrosis with residual infection occurred, and the abscess gradually developed. It is unusual for such a cavity, apparently with free bronchial communication, to retain its contents so long and for the latter to remain inoffensive.

### *Relative Frequency of the Complication.*

An investigation of the records of the Middlesex Hospital over a period of 25 years was undertaken in order to obtain some figures as to the relative frequency of these highly fatal complications. Fifteen cases of abscess and 16 cases of gangrene were recorded during the years 1898–1922, in an average admission of 1400 cases per annum. The death-rate in this series was 80 per cent. for abscess, and 81·25 per cent. for gangrene. The average age of the patients suffering from abscess was 37 years, and of those suffering from gangrene 41·8 years, or omitting one case in a child of 3 years, it was 44 years. The oldest patient in this latter group was aged 70 and she recovered. The following tables show briefly the primary cause of the disease and the result.

TABLE I.—*Abscess.*

| Primary cause. | No of cases. | No. of deaths. |
|---|---|---|
| Lobar pneumonia . | 1 | 1 |
| Influenza and influenzal pneumonia | 3 | 2 |
| Broncho-pneumonia . . | 3 | 3 |
| Intra abdominal disease . . | 3 | 2 |
| Puerperal sepsis, pyæmia . .. | 1 | 1 |
| Uncertain, pyopneumothorax . | 1 | 1 |
| Typhoid and dysentery, 20 years previously .. .. | 2 | 1 |
| Inhaled foreign body .. | 1 | 1 |

TABLE II.—*Gangrene.*

| Primary cause. | No of cases. | No. of deaths. |
|---|---|---|
| Lobar pneumonia .. .. . | 3 | 2 |
| Influenza and influenzal pneumonia | 2 | 1 |
| Broncho pneumonia .. . .. | 3 | 2 |
| Cardio-renal sclerosis .. .. | 1 | 1 |
| Cirrhosis hepatis .. . . | 1 | 1 |
| Diabetes with granular kidney | 1 | 1 |
| Cardiac dilatation and hypertrophy | 1 | 1 |
| Carcinoma ventriculi . .. .. | 1 | 1 |
| Gastric ulcer .. . .. .. | 1 | 1 |
| Gangrenous pharyngitis .. .. | 1 | 1 |
| Uncertain .. .. . .. | 1 | 1 |

In the series of cases of abscess it will be noted that in eight of them the primary disease was in the lung, and a ninth case was due to the inhalation of a foreign body. Lobar pneumonia only accounted for one of these cases, though abscess and purulent infiltration are always stated as complications. Influenza accounted certainly for three cases and probably for a fourth, all between the years 1899 to 1902. From 1898 to 1909 all cases of pneumonia were classified together and amounted to 1285 for the 12 years. From 1910 to 1922 there were 772 cases of lobar pneumonia and 378 cases of broncho-pneumonia, besides cases arising during the course of other diseases and not separately recorded. Abscess, therefore, as a complication of lung disease only occurred in 0·32 per cent. of cases, and the percentage incidence for lobar pneumonia is no doubt less. Fränkel[1] records, on the other hand, abscess formation in 2 per cent. of pneumonias. The physical signs varied, usually an impaired note with diminished air entry; signs of excavation were less frequent. The sputum in the majority of cases was copious, more than 20 oz. a day in three cases, muco-purulent, and offensive. Hæmoptysis occurred in one case, and pleural friction was noted in one case. Post mortem the lower lobe was involved in six cases, and the upper and middle lobes in three. In the remainder multiple abscesses were present. In one case a large effusion of dark purulent material, 150 oz., was present in the pleural cavity.

In the series of cases of gangrene several cases occurred as terminal infections in chronic disease, and the age-incidence was higher. Clinically the symptoms were more severe, fever being higher and rigors frequently noted. The sputum was always extremely foul and, except for the child of 3 years with gangrenous pharyngitis, contained blood, though the child had a blood-stained discharge from the pharynx. Signs of excavation were present in four of the cases, a pleuritic friction in two. Post mortem the lower lobe was involved in 11 cases and the upper lobe in two. In the remainder numerous areas of gangrene were present.

With regard to the question of surgical interference, all the cases of gangrene were gravely ill, and such treatment was only tried in one case of abscess recorded at length. It must be noted that the majority of these cases occurred prior to 1914, since when the surgery of the chest has made great advances, and methods of radiological localisation have been greatly improved.

In reading through the case reports from which these statistics have been compiled it is evident that the diagnosis of these two lesions was in the majority of cases a difficult one. This difficulty was also apparent in the two cases cited at length; in one of them the lesion present was not diagnosed during life. Though the ætiological factors, speaking generally, are the same, whether abscess formation or the more severe gangrenous change is to occur, appears to depend very largely on the resistance of the patient and the severity, virulence, and type of the infecting organism.

When the final results are examined the death-rates of the two conditions are approximately equal, and cases treated medically are almost invariably fatal. Verneuil[2] in 1900 recorded a death-rate for gangrene of 80 per cent., and Lenhartz[3] in 1905 a death-rate of 70 per cent. Medical treatment, therefore, does not appear to have been any more successful in the last 20 years. P. H. Pierson, writing in Billings-Forchheimer's "Therapeusis of Internal Disease," 1924, also quotes a mortality-rate of 60 per cent to 90 per cent. in cases treated by medical measures.

Surgical treatment certainly offers a greater hope of cure. The induction of a pneumothorax is unsuccessful in many cases on account of the presence of adhesions. Sauerbruch[4] performs an open operation, draining the cavities. He gives figures of his results; the mortality-rate for acute abscess was 15 per cent., for chronic abscess 37 per cent., and for cases of gangrene 51 per cent. Where the disease process is progressing rapidly or a foreign body is present which cannot be removed by the bronchoscope an immediate operation is advisable; in other cases time should be allowed for the abscess to become walled off and pleural adhesions to form.

My thanks are due to Dr. Voelcker for permission to publish the two cases recorded here, which were under his care, and for his criticisms of this paper, and to the other members of the staff of Middlesex Hospital who have allowed me to use the records of their cases for the second portion of this article.

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[1] Fränkel: Deutsche Med. Woch., 1903, p. 204.

[2] Verneuil: Ann. de la Soc. Belge de Chir., 1900, viii., 148.

[3] Lenhartz: Verhandl. d. Deutsch. Röntgengesell., 1905.

[4] Sauerbruch, F.: Die Chirurg. der Brustorgane, second edit., 1920, Berlin.

# NOTES OF 100 CONSECUTIVE CASES OF SCOPOLAMINE-MORPHINE NARCOSIS IN CHILDBIRTH.

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The narcosis, called "T.S." for brevity, was administered by me, and the patients were under my close observation in my nursing home; 61 were primiparæ, 39 multiparæ. Other confinements in the home during the same period but without T.S. afforded means of comparison.

### *Method.*

The injections were hypodermic, usually into the arm, the patients being kept in bed. The room was darkened and absolute quiet observed. Dark glasses were not used, and wool ear-plugs were employed in one case only.

The first dose for primiparæ was morphine gr. ¼ and hyoscine gr. 1/100, given when the patient said the pains were becoming severe. The personal factor of sensitiveness to pain and general nervousness naturally affected the length of the period between the earliest pains and the first injection, but patients were encouraged to bear the slighter pains. Vaginal examinations were not made unless specially indicated, but where they were called for it was found that dilatation rarely exceeded 1 inch without severe pains.

For multiparæ the first dose was morphine gr. ⅙ and hyoscine gr. 1/100, given as soon as labour began and without waiting for severe pains. No injection was given if it appeared that labour would be over in three hours or less; with this exception the cases were not selected in any way. The second dose was usually hyoscine gr. 1/150 an hour after the first; in one case gr. 1/100 was given. Subsequent doses consisted of hyoscine only; in no case was any more morphine given. The frequency and amount of the doses, from gr. 1/150 every hour to gr. 1/450 every two or three hours, were determined by the response to memory tests. Amnesia, not analgesia, was aimed at, and in no case was analgesia obtained.

In nearly all cases a little chloroform was given at the end of the second stage, and unless an ordinary dose of hyoscine had been given recently I found it advisable to give a small dose shortly before the end of the second stage to ensure sleep continuing after the birth; I regard this sleep as a very important factor in attaining complete amnesia. Water was given freely, and in long cases milk or beef essence.

### *Duration.*

For primiparæ, the longest interval between the first dose and delivery was 55 hours, the shortest 1¾ hours, average 13½ hours. For multiparæ, the figures are 15½, 2, and 5¼ hours respectively. It is obvious, therefore, that the duration of labour is not increased, as has been stated. On the contrary, it appears that at times it is shortened by the removal of inhibition and the preservation of strength by sleep.

### *Total Dosage.*

For primiparæ, the greatest amount of hyoscine was gr. 11/120 in 29¼ hours, the least gr. 1/100 in 1¾ hours, average gr. 1/25. For multiparæ, the figures are, gr. 7/150 in 8 hours, gr. 4/450 in 2 hours, and gr. 1/43 respectively. I have not been able to trace any relationship between the temperaments of the patients and the amount of hyoscine required; for example, two successive primiparæ, young, healthy women, each of whose T.S. lasted 9¼ hours, required five injections totalling gr. 1/30, and seven totalling gr. 1/20 respectively.

### *Course.*

The patients slept practically throughout labour; with the more severe pains they might stir uneasily and groan, and possibly complain of the pain, falling asleep again directly the pain passed off. In many cases what was uppermost in their minds was what had occupied them when labour began, such as their domestic and household arrangements. The following is a typical instance of a patient's utterance: "Oh dear I can't stand any more this twilight sleep isn't any use why don't they give me some more I suppose they have run out of it I think I'll have toasted cheese for my supper." The whole was muttered without a pause, the last nine words signalling the end of the pain and that this had been forgotten; the patient then went off to sleep. Four patients became excited, trying to get out of bed, but obviously quite unconscious of their surroundings. A further dose of hyoscine and the inhalation of a little chloroform controlled the excitement and produced sleep. Subsequent doses in these cases were the usual ones—no greater dose than usual was necessary to maintain quiet sleep. Four patients, though not restless or excited, slept very little; they talked irrelevantly and disconnectedly most of the time, and fancied their relatives and friends were with them. The 55-hour case was in this class.

### *Amnesia.*

Of the primiparæ, over 90 per cent. remembered very little after the first injection, and nothing after the second had taken effect, until a varying period after the birth was completed. I have already mentioned the importance of sleep immediately after the confinement. The remaining primiparæ had some vague recollections of various details and incidents, more or less distorted and confused as to time, &c. With the multiparæ, those who had previously had T.S. successfully, were again successes as regards amnesia. With those who had had prior confinements without T.S., or with whom on former occasions the T.S. had not been successful, it was found that, although the case might now be a complete clinical success as regards amnesia, yet the memory of the previous confinements was often transferred to the present one. The patient would say she remembered all the pains, the birth, and everything else, but investigation of her memory for times, number of injections, &c., would show that amnesia was perfect, and that the origin of her impressions was a previous confinement. As a rule, the patients realised this later.

It was quite usual for both primiparæ and multiparæ to say they could hardly realise the baby was theirs, and that they had lost from a few hours to two or more days of time. Many also apologised for having been so noisy and troublesome, when in fact they had been perfectly quiet and placid.

*Inertia* was infrequent; in one case only was it severe, that of the 55-hour primipara. She was over 40 years of age, unhealthy and flabby, with a very septic mouth. She had vague feeble pains for 24 hours before the first injection, the pelvic outlet was narrow, and a difficult forceps extraction under full chloroform anæsthesia was ultimately necessary.

*Third stage* was completed in under 30 minutes except in two cases; in both of these the placenta was nipped partly in the uterus and partly in the vagina.

*Hæmorrhage* was severe in one case only, and was easily controlled by kneading and the injection of pituitary extract. In no other case was any increased tendency to hæmorrhage, as compared with ordinary cases, observed.

*Temperature.*—The usual reactionary rise after delivery was entirely absent in the majority of cases; in the others it rarely exceeded 99° F.

### *Puerperium.*

With the exceptions to be detailed convalescence was very rapid, owing to the absence of shock and exhaustion; it was the rule for mothers to say they felt well enough to get up two or three hours after delivery. This well-being at such an early stage was perhaps the most notable feature from the point of view of the patients' friends. Even the 55-hour case, with full chloroform anæsthesia at the end, felt perfectly well a few hours after. In no case were there any mental symptoms. There was no vomiting with T.S. alone, other than that during the first stage of labour, and this was quite infrequent and slight. Where much chloroform in addition was given the tendency to vomiting was undoubtedly less than with chloroform alone. The exceptions to a normal puerperium were:—

(1) A case of eclampsia; urine found loaded with albumin at the onset of labour; 15 fits in 24 hours after delivery; no further fits, convalescence uninterrupted after. A primipara who had had the usual T.S. (2) A case of slight thrombosis of the veins of the back of the calves of the legs in a thin, ill-nourished woman, beginning on the fourteenth day after delivery. (3) and (4) Two cases of delayed involution, with persistent red lochia, requiring rest in bed beyond the usual 14 days, douches, &c. Both were mothers of several children.

*Lactation* was unaffected.

*Infants* were not affected harmfully; on the whole, they were more placid and contented during the first few days of life than those born without T.S. It seems only rational to consider that the infant, during its birth, shares in the mother's freedom from the consciousness of suffering. Artificial respiration for shock ("white asphyxia") was required in the 55-hour case, and in two other cases after difficult forceps extractions with considerable chloroform. All three babies did well. There was no other case of greater severity than some sluggishness of breathing for a short time—oligopnœa.

The following abnormalities occurred:—

(1) Twins, stillborn and premature: combined weight 5 lb. The mother, a primipara aged 37, had had a severe shock a week previously, and had felt no movements since. No fœtal heart was heard. Duration of T.S. 21 hours, total dose gr. 7/120. Delivery unassisted by forceps. (2) Breech; stillborn. Primipara. Cord four times round neck. Duration 23½ hours; amount gr. 1/30. (3) Breech; stillborn. Primipara. Cord round neck. Duration 37 hours; amount gr. 13/200. (4) First vertex; stillborn. Primipara of very small build; difficult forceps extraction; weight of child 6½ lb. Duration 10½ hours; amount gr. 1/120. (5) Anencephalic monster, stillborn, vertex presentation. Primipara. Duration 10 hours; amount gr. 13/300. (6) First vertex. Primipara aged 40, unhealthy, with pyorrhœa. Slight inertia. No vaginal examination made. Membranes ruptured spontaneously, liquor amnii brown and turbid with foul fæcal odour. Delivery spontaneously after ½ c.cm. pituitary extract during second stage. Birth of head followed by rush of liquor, some of which the child inhaled, dying 80 hours later of pneumonia. The mother made an uninterrupted recovery without rise of temperature.

### *Later History.*

Many of the mothers and children of this series, and others who had previously had T.S. in the home from two to nine years ago, have been seen since leaving the home. The children are healthy and bright and at least up to normal standards both physically and mentally. I have not heard of any instance of mental or moral defect, so often stated to be the result of T.S. Many mothers have remarked how much more quickly they have recovered than their friends who have not had T.S. Very many have volunteered the statement that they would not mind how many children they have, as regards the confinements, if they can have T.S. One mother has had four confinements, and many have had two and three, with T.S. There is no evidence to support the not uncommon idea that T.S. leads to drink or drug-addiction.

### *Conclusions.*

Provided that the dosage is limited to the production of amnesia only, and is adjusted to the individual, there do not appear to be any contra-indications. The constant supervision that is essential makes T.S. unsuitable, save in exceptional circumstances, for administration in the patient's own home. In hospitals it is difficult to ensure quiet. Full chloroform anæsthesia may be given at any time during T.S. for such procedures as version or rotation of an occipito-posterior presentation, the T.S. being continued afterwards if necessary; or for a terminal forceps extraction, perineal repair, &c. Fortunately, no more serious operative procedure has been necessary in this series, but there seems no reason to anticipate that any such would be prejudiced, either as to the operation or the anæsthetic, by the fact that T.S. had been given.

One great advantage of T.S. is that as the mother is conserving her strength by sleeping, instead of getting worn out by repeated pains and the constant dread of more and worse ones, cases can be left much longer to Nature than would otherwise be possible; in uncomplicated cases the use of forceps merely for the mother's sake is avoided, with consequent lessened risk for both mother and child.

I have to thank Dr. H. O. Davies and Dr. R. H. Dixon for permission to include details of patients under their care in the home, my part in such being limited to the administration of the T.S.

# Clinical and Laboratory Notes.

## A CASE OF
## "LAG" GLYCOSURIA.

BY E. M. WATSON, M.D. WEST ONT., M.R.C.P. EDIN.

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THE sugar-tolerance test has provided a means for distinguishing between true diabetes and other conditions showing the presence of sugar in the urine, unassociated with any defect of carbohydrate metabolism. In this latter category may be placed, among others, cases of renal glycosuria and, perhaps, certain cases described as "lag" glycosuria. Owing to the lack of certain knowledge concerning the last-named condition, a record of the following case may be not without interest.

### *Clinical Record.*

The patient, a man aged 52, was admitted to hospital on August 24th, 1925, with the following complaints: (1) loss of weight, (2) loss of appetite, (3) vomiting, and (4) constipation. Three months previously he began to vomit after food, his appetite failed, and he lost 40 lb. in weight. He has had no pain with the exception of an occasional burning sensation over the epigastrium. He has never vomited blood nor noticed blood in the stools. There has been no excessive thirst, and the volume of urine has not been increased. Radiographic examination showed the stomach to be contracted to a capacity of about two ounces; the barium meal rushed through into the intestine without delay (a gastro-enterostomy had never been performed). Routine examination of the urine revealed an intermittent glycosuria.

### *Laboratory Findings.*

1. *Urine.*—On a full diet glucose appeared in the urine after meals and disappeared on fasting; the amount varied from a trace to 2 per cent. The urine showed an absence of ketone bodies and of protein. The diastatic index was 10.

2. *Glucose-Tolerance Test.*—

| Time. | Blood sugar (per cent.) | Urine (per cent.) | Sugar (amount) |
|---|---|---|---|
| Before glucose .. .. | 0·087 | 0 | 0 |
| After glucose (50 g.)— | | | |
| ½ hour . .. .. | 0·222 | — | — |
| 1 " .. .. . | 0·098 | 0·80 | 238 mg. |
| 1½ hours .. .. .. | 0·070 | — | — |
| 2 " .. .. .. | 0·080 | 0·57 | 102 mg. |

3. *Fractional Gastric Analysis.*—There was no fasting gastric content. Fifteen minutes after a gruel meal a small amount of material resembling saliva was recovered which did not give a reaction for HCl or starch.

4. *Other Findings.*—Blood Wassermann, negative. Non-protein nitrogen, 29·1 mg. per 100 c.cm. of blood. Tests for occult blood in the fæces, negative on three occasions. B.M.R., −12 per cent.

### *Discussion.*

A discussion of the clinical condition of this patient will not be attempted; only one aspect of the case will be considered—namely, the blood-sugar curve and the glycosuria. MacLean[1] has described the "lag" type of blood-sugar curve. Its chief characteristics are a rapid rise to a maximum of 0·22 or 0·23 per cent. in half an hour, followed by an abrupt decline to normal. There is a concurrent glycosuria.

The interpretation of such an effect presents some difficulty. Is there an abnormality of the carbohydrate storage mechanism such that it requires an unusually high blood-sugar concentration to set it in operation? Or is the mechanism merely temporarily overwhelmed by the rapid absorption of a large amount of glucose? Considering the velocity with which the stomach emptied itself in the case recorded above, the latter explanation would seem to apply, in this particular instance at least. That the carbohydrate storage function is efficient, once it becomes active, is demonstrated by the fact that the blood-sugar curve returns to the normal level within the recognised standard limit of time. Bennett and Dodds[2] have shown that solutions of glucose, under normal conditions, are detained and diluted in the stomach.

According to MacLean the "lag" type of blood-sugar curve is of little or no prognostic significance, although he states that some investigators claim that the condition may terminate in a true diabetes. In a case reported recently[3] the patient is said to have had the condition for 30 years without showing any tendency to pass into a true diabetes.

The case described in this note not only serves to emphasise the importance of the glucose-tolerance test in throwing light upon glycosurias of uncertain origin, but also suggests that cognisance should be taken of a possible relationship between the emptying time of the stomach and the distortion of the carbohydrate metabolism in cases of the "lag" type.

Thanks are due to Dr. J. C. Wilson and Dr. G. C. Hale for permission to publish this case.

## NOTE ON AN UNUSUAL CASE OF SUPRACLAVICULAR ADENITIS.

BY FRANK BODMAN, M.B. BRISTOL, M.R.C.S. ENG

THE following case is of interest on account of its unusual character.

W. F., aged 50, reported that two days previously, while hay-making, he had fallen off a wagon on to the shoulder and had since been unable to use the arm. On examination by candle-light a tender swelling over the middle of the clavicle was discovered. There was pain on attempting to move the arm, and drooping of the shoulder on the affected side. The patient was mentally deficient and very deaf. Diagnosis of fractured clavicle was made. Next day it was noticed that the tender swelling was above the clavicle and beside a well-marked deltoid tubercle, the lower border of the clavicle being unbroken. This was confirmed by a skiagram. Further examination discovered a small granulation under the nail of the thumb. The patient complained of no pain there. There was no enlargement of glands in the axilla. The supraclavicular swelling was fomented for 48 hours—no fluctuation could be detected at any time. Glycerine of ichthyol was then applied and the swelling resolved.

Wood Jones[4] states that in fœtal life the cephalic vein empties into the external jugular instead of the subclavian, and presumably its accompanying lymphatics terminate in the supraclavicular glands. Kanavel[5] states that the most external collecting trunk of lymphatics from the hand occasionally passes over the clavicle to empty into the supraclavicular gland.

Bristol.

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[1] MacLean, H.: Modern Methods in the Diagnosis and Treatment of Glycosuria and Diabetes. Second edition, 1924, p. 42.

[2] Bennett, T. I., and Dodds, E. C.: THE LANCET, 1925, i., 429.

[3] Carrasco-Formiguera, R.: THE LANCET, 1925, i., 1076.

[4] Principles of Anatomy as seen in the Hand, p. 312.

[5] Infections of the Hand, p. 287.

## FLOATING HEPATIC LOBE.

BY A. J. E. CAVE, M.B. MANCH.,

SENIOR DEMONSTRATOR IN ANATOMY, UNIVERSITY OF LEEDS.

OF the abdominal viscera, by far the most constant in size, shape, and general proportions is the liver, and only very occasionally does this organ depart in form from the standard anatomical description. Owing partly to this and partly to its position in the upper abdomen, the liver is of the utmost importance to the clinician if only as a passive indicator of disturbances in the neighbouring viscera or in the thoracic cavity. Hence the necessity for mapping out the hepatic area in all routine examinations, and for a knowledge of the commoner extrinsic malformations or varieties of this gland.

The most frequent extrinsic anomaly encountered is the well-known Riedel's lobe, a tongue-like downward prolongation of the right lobe, a condition which Riedel thought to be associated with distension of the gall-bladder. Less common, but equally important, is the occurrence of the so-called "floating lobe" in connexion with the left lobe of the liver, which Quain[1] well described as a detached portion occasionally found appended to the left extremity of the liver by a fold of peritoneum containing blood-vessels, and "forming a sort of accessory liver." Such floating lobes rarely produce symptoms, but can give rise to definite signs, recognisable clinically, and may easily simulate abdominal tumours or an accessory spleen. In one such case, described by Inglis,[2] the additional liver lobe formed a pulsatile and expansile tumour in the left upper abdomen, which at autopsy proved to be a rounded piece of hepatic tissue lying in its own capsule quite apart from the liver, to which it was connected by a mesentery about 2 inches in length. The subject was a female lunatic aged 75; the gall-bladder was not distended, and no symptoms could be ascribed to the presence of the additional lobe.

The present case is very similar. In the recent dissection of an obese female subject aged 80, also the victim of chronic mental disease, a mass the size of a hen's egg was detected close to the spleen, and was thought, at first, to be an accessory spleen. Further investigation showed, however, that the mass was a true floating lobe of the liver, to the left edge of which it was attached by a double fold of peritoneum which acted as its mesentery, and, in life, must have permitted great mobility of the extrinsic lobe. The gall-bladder was contracted and the liver otherwise normal.

These floating lobes have a certain, if limited, clinical importance, and are worthy of note. Treves[3] thought them to be associated with gall-bladder distension, but this is not the case. They are always congenital in origin, and are due to portions of hepatic tissue being isolated, as it were, during the great shrinkage of the left liver lobe which occurs towards the end of fœtal life and for some time following birth.

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[1] Quain's Elements of Anatomy. 1882, ninth ed., ii., 626.

[2] Inglis, J. P. P.: Brit. Med. Jour., 1911, i., 83.

[3] Treves, Sir F.: Med. Rev., iii., 321.

MENTAL DISEASE IN IRELAND.—At a meeting of the Poor-law Commission of the Irish Free State Dr. D. L. Kelly, inspector of mental hospitals, reported that, with the exception of Letterkenny, virtually every asylum in the Free State is overcrowded. There were approximately 1000 patients too many for the accommodation, yet mental disease was only slightly on the increase. He advocated the provision of an auxiliary asylum for every province.

SUSSEX PROVIDENT SCHEME.—This scheme for hospital and specialised medical services appears to be growing apace. Since its inception the following sums have been paid to hospitals: 1921, £332; 1922, £1030; 1923, £3245; 1924, £5501; 1925, £6370. These sums include payments for services rendered at non-coöperating hospitals to members who paid for treatment at any hospital they chose in other parts of the country.

# Medical Societies.

## MEDICAL SOCIETY OF LONDON.

A MEETING of this Society was held on Feb. 8th, Sir HOLBURT J. WARING, the President, occupying the chair.

### RIGHT ILIAC FOSSA PAIN.

A discussion on this subject was introduced by Mr. W. H. CARSON, whose contribution will be found in full on p. 338 of this issue of THE LANCET.

#### *The Medical Aspect.*

Dr. ARTHUR F HURST dealt with the diagnosis of pain in the right iliac fossa due to disease of ileum, cæcum, and appendix. He affirmed that the chief explanation of the numerous mistakes made in diagnosis was want of care, and that a thorough investigation of the whole alimentary tract, or of the whole body, ought to prevent the vast majority of errors. It was desirable to avoid removing an appendix which was not diseased, but it was also important not to overlook chronic disease associated with appendicitis in some other part of the abdomen, which would be revealed by thorough preliminary examination of the patient For example, in 40 per cent. of cases of chronic appendicitis, confirmed by operation, achlorhydria was present. This meant that gastric digestion was not taking place, and so the patient was predisposed to intestinal infection and a variety of complications Appendicitis was also frequently associated with chronic cholecystitis, and if tenderness in the region of the gall bladder had been carefully elicited and the duodenal tube had been used to get some bile for investigation, this association would have been recognised. There was also a frequent association of appendicitis with gastric and duodenal ulcer, and the latter would have been evident on X ray examination. A condition causing right iliac pain which was not mentioned by Mr. Carson was amœbic infection of the cæcum, not only in people who had returned from the East, but sometimes in those who had not been out of this country. In these cases both the cæcal and the liver pain cleared up after injections of emetine. In most of these cases cysts could not be found in the stools, and they did not proceed to abscess formation, but they could be cured by emetine.

The most important help in the diagnosis was that afforded by X rays; by this means it was possible to see the appendix in normal people, and in at least a large percentage of people with chronic appendicitis. For this, however, there must be a proper technique. A radiogram by itself was useless; there must be a screen examination, though as a matter of record a skiagram could be taken too. At the screen examination the physician should be present. Dr. Hurst described by means of a diagram how the tenderness caused by an inflamed appendix could be differentiated from muscle pain, a particular manipulation moving the appendix out of the way for the time being. When an appendix had been removed and the patient still had pain in that region it was often said to be due to adhesions, but he doubted whether adhesions there would cause such pain, or an ileal kink either. It was more likely to be due to the failure of the gastro-colic reflex. He believed it was only possible to diagnose the presence of adhesions by inflation of the colon with air before applying the X rays With regard to the position of the cæcum, in 10 per cent. of normal people it was in the pelvis when they were lying down, and in 25 to 30 per cent. it was in the pelvis when they were in the erect posture; a cæcum in the pelvis, therefore, was not pathological. The trouble was that those who examined pathological people and specimens did not sufficiently examine the normal. In the small proportion of cases in which the appendix was not visualised, all one could do was to see if there was localised tenderness, estimated by moving the cæcal end of the ileum and ascertaining if there was tenderness where the appendix was expected to be. Another condition to bear in mind was tuberculosis limited to the end of the ileum, perhaps just affecting the beginning of the cæcum. These cases simulated appendicitis very closely, but the appendix was not found to share in the tenderness After the patient had been sufficiently long on a carbonaceous diet, if the condition was appendicitis, there was never occult blood in the stools unless there were some such complication as ulceration of duodenum or stomach. Another confusing condition was cæcal and ascending colon stasis, which was sometimes associated with some localised colitis or typhlitis. In such cases removal of the appendix did no good; the patient suffered from various other symptoms besides the chronic iliac pain, and the tenderness was confined to the cæcum and ascending colon. Radiographic examination revealed that the cæcum, instead of being empty after two days, contained a considerable residue of the barium meal four or five days after it was taken. Even when the appendix was secondarily involved in the stasis, removal of it did not cure the pain. But by prolonged medical treatment, massage, and dieting these patients could be made well. Division of bands in this region not only did not benefit, but he had seen patients made definitely worse by that procedure.

#### *The Gynæcological Aspect.*

Dr. T. WATTS EDEN said the gynæcologist was somewhat at a disadvantage in taking part in this discussion, as the organs with which he was specially concerned were either mesial or bilateral, and so there was no reason why disease of them should cause pain on one side more than on the other. It was inevitable that appendicitis must loom largely in this discussion, and it was sometimes associated with inflammatory disease of the pelvis. It was the experience of his colleagues that in cases of chronic salpingitis—which mostly came to operation—the appendix was involved to a greater or less extent, in quite 50 per cent., and in perhaps half the cases operated on for salpingitis the appendix was taken away. There might be merely a thin band of adhesion between the inflamed tube and the appendix. To what extent the involvement of tubes in the appendix caused the pain it was difficult to say, especially as these women usually had many pains associated with their chronic ill-health. When the appendix was not removed the symptoms were sometimes only partially relieved, and when the patient returned a second operation showed the appendix adherent to the broad ligament pedicle, this pedicle consisting of infected tissue. For some time American surgeons had always removed the appendix when they were taking away the tubes. Acute salpingitis was met with under two sets of conditions. The first were those of septic infection from childbirth or abortion; the second was gonorrhœa. In the first of these the circumstances in which the acute abdominal symptoms occurred drew attention to the possibility of the tubes being infected. In gonorrhœa, however, there might be nothing more than a slight discharge to give a clue, and this might not be carefully examined. When salpingitis occurred from gonorrhœa it often came on quite early in the disease. Then there was a sudden acute attack of pain, with fever, vomiting, and constipation, which might closely simulate appendicitis. It might be said that diagnosis was not here of prime importance, since operation would be needed in any case: but this was not so, as the gonorrhœal salpingitis showed a great capacity for recovery. Though eventually the condition became bilateral, one side was often involved some days before the other, and the tubes might retain functional competence for some time. Torsion of the pedicle of a tube might cause a pain simulating that of appendicitis, and an ovarian cyst might twist its pedicle. Until the tube had attained some size it did not come under the influence of the movements of the abdominal muscles which started the twisting.

In these cases the diagnostic difficulties must be very great. He agreed in deprecating the minimal incision in these abdominal operations, because of the desirability of ascertaining the condition of contiguous organs. Cases of ovarian pregnancy had occurred with severe symptoms, and there were records of women having died from burst ovary and hæmorrhage in the peritoneal cavity. Or there might be hæmorrhage into the corpus luteum, usually in a diseased or cystic ovary. In one form the hæmorrhages were multiple. The condition was usually bilateral, but one side was affected more than the other, and the pain referred to the right iliac fossa would often be a very prominent symptom in these cases. They were generally recognised on account of bilateral ovarian enlargement, and associated dysmenorrhœa and perhaps an adherent and retroverted uterus. He concluded by relating a case in which a sewing needle was found transfixing the right ovary. Some time before the patient had swallowed a sewing needle which she had in her mouth, and it was supposed to have passed per rectum; but apparently it had lodged in some part of the pelvic cavity, and as a result of a fall it was jerked into the ovary, where it caused the pain.

The PRESIDENT mentioned a case which he had encountered abroad in which the acute right iliac pain was due to the presence of a collection of nematode worms. In his own experience he was able to say that in the majority of cases in which the cæcum had been brought up from the pelvic cavity and fixed at a higher level the patients had not been benefited. With regard to the X ray diagnosis of chronic appendicitis, he felt that many radiologists had not had sufficient of the experience gained from attending the laparotomy after they had made a diagnosis from the skiagram. In some cases in which he operated for appendicitis he had found that the appendix was not materially diseased, but there was a tuberculous condition of the adjacent portion of bowel.

Mr. J. E. H. ROBERTS congratulated Dr. Hurst on the way in which he was raising the art of diagnosis by opaque meal from a haphazard procedure to a science. Fixation operations for mobile colons answered for a time, but in 12 months the patients were as bad as before. The discussion had emphasised once more the importance of a thorough all-round examination of the patient, rather than examination of one organ by some individual who never saw a disease of any other organ.

Dr. G. W. GOODHART referred to the condition of spasm of the colon, and gave a personal experience. He also spoke of cases in which apparently dysentery had been cured, but the patient suffered for many years afterwards from a good deal of chronic pain in the right iliac fossa; this also he considered to be due to spasm of the colon. With regard to Dr. Hurst's remark, Dr. Goodhart did not think that the fact that a patient's abdominal symptoms were cured by emetine was proof that he had been suffering from amœbiasis unless the amœba was actually found.

Mr. T. H. OPENSHAW said that he had had a good many cases of colitis with appendicitis which were cured with the removal of the appendix. An additional cause of right iliac pain was psoas abscess; another was adherence of the colon or appendix to the external cutaneous nerve. The most common causes of pain after appendix removal were adhesion of the omentum to the scar inside, a commencing ventral hernia, or involvement or ligature of the inguinal nerve during the operation.

The openers briefly replied.

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BRITISH INSTITUTE OF PHILOSOPHICAL STUDIES.—A special meeting to discuss the Problem of Colour in Relation to the Idea of Equality will be held at the Royal Society of Arts, 18, John-street, Adelphi, London, on Tuesday, Feb. 16th, at 8.15 P.M. The openers of the discussion are Sir Frederick Lugard, the Hon. H. A. Wyndham, and Dr. Morris Ginsberg. Tickets of admission, which are limited in number for members of the public, can be obtained on application to the Director, British Institute of Philosophical Studies, 88, Kingsway, W.C. 2.

# ROYAL SOCIETY OF MEDICINE.

## SECTION OF OTOLOGY.

A MEETING of this Section was held on Feb. 6th, Mr. G. J. JENKINS, the President, being in the chair. The PRESIDENT opened a discussion on

### FRACTURE OF THE BASE OF THE SKULL.

He said his object was to direct particular attention to certain general principles of surgery, rather than to the symptoms, signs, or permanent effects of injury to the parts in which the aural surgeon was specially interested. In all cases, before making a routine examination of the nose and ear, it was desirable to know whether there had been a chronic sepsis of these regions.

*Diagnosis.*—When confronted with serious head injury, even when there was no obvious sign of damage in these regions, the nose and ear should always be carefully examined. Sometimes the evidence of fracture of the base was obscure. Bleeding from the nose in serious head injuries was frequently due to fracture of the skull base, yet it might be caused by an intrinsic injury to the nose. The elimination of fractured base when such nose injury was present might be impossible, and Mr. Jenkins asked that this point might be discussed. He asked whether members regarded loss of smell as a constant accompaniment of fractures which involved the cribriform plate. A posterior hæmorrhage could sometimes be discovered coming from the naso-pharyngeal roof, or a fine stream of blood might issue from the orifice of the Eustachian tube. The examination of the patient should not be considered to be complete until the nose had been searched for gross sepsis.

With regard to fracture involving the ear, when there was destruction of the labyrinth or a lesion of the lower neuron of the seventh cranial nerve, or severe bleeding, or a flow of cerebro-spinal fluid from a torn tympanic membrane or the skin of the meatus, usually there was no doubt that fracture of the base had occurred. When considering injury of the labyrinth one must have in mind the possibility of a severe blow affecting the labyrinth without fracturing the capsule. Injury of the seventh cranial nerve was common, and it was not unusual for the paresis to increase for two or three days after the accident. When blood flowed freely it was very difficult to detect cerebro-spinal fluid in it, though usually this could be done when bleeding had practically stopped. Blood clot sometimes rendered it difficult to make out the details of the injury. In cases of gross injury of the ear there was but little difficulty in making a diagnosis. Mr. Jenkins therefore emphasised the less obvious indications of fracture, and quoted an illustrative case in which the patient, following a fall, had a blackening of the right tympanic membrane, and blood was trickling from the Eustachian tube on that side. He considered that the presence of blood in the middle ear justified the diagnosis of fractured base. A fracture might involve the bony external auditory meatus without rupture of the tympanic membrane or the membranous meatus. In such cases the line of fracture might be indicated by a swelling, sometimes a discoloured line. A comparison with the other ear should always be made; and the presence or absence of chronic middle-ear suppuration should be noted.

*General Management and Treatment.*—Mr. Jenkins stressed the importance of preventing infection and especially of its extension to the meninges. When the nose had been severely damaged there was a temptation to attempt immediate correction of the deformity, but there might be a risk in this if fractured base had not been quite excluded. When fracture involved the ear and there was no bleeding, he advised dropping into the meatus a 2½ per cent. alcoholic solution of iodine, cleaning up the pinna, and dressing aseptically. He did not advise the removal of thin, dry blood in the deep meatus; he preferred to simply fill the meatus with the iodine solution.

Syringing in these conditions he did not favour. Discussing the best procedure when fracture occurred through an ear which was the seat of chronic suppurative middle-ear disease, he said that if there was an obvious escape of cerebro-spinal fluid he would make the drainage of that part as free as possible, even doing a partial radical mastoid operation for this purpose and exposing the dura along the line of fracture in this neighbourhood. In the absence of evidence that the dura had been seriously damaged he would clean up the region at regular intervals, and proceed further as indications arose. His reason for this caution was that operative action might, in the first day or two, cause movement of bone fragments, and so produce damage to the dura.

### *Discussion.*

Sir Charles Ballance said he had never seen hæmorrhage from the internal carotid coming out of the external auditory meatus, except in tuberculous disease of the petrous bone; not from injury. And it was very rare for hæmorrhage to come from the lateral sinus. If this did occur it was liable to be rapidly fatal. Hæmorrhage might come from the middle meningeal artery The chief sources of hæmorrhage in these cases, however, were the vessels of the tympanum and those of the meninges. Efforts must be directed to stopping this bleeding and preventing the supervention of sepsis. If important parts had been interfered with the surgeon must try to secure a return of their function. In some cases of fractured base the hæmorrhage continued for a number of days; in others it had ceased to be important by the second day. Associated with the bleeding there was often concussion and unconsciousness. In that case the earlier decompression was carried out the better it would be for the patient; he had had many cases in which the great value of sub-temporal decompression was demonstrated. Any surgeon who saw such a case should do this operation without loss of time. Of 16 cases in which Harvey Cushing trephined in this way all except two recovered. In cases in which the nose was damaged the same principles of treatment applied. He did not think the nose could be rendered aseptic. Where a fracture occurred across the cribriform plate decompression could be done and sterilised gauze introduced between the brain and the fracture with the object of preventing infection. When fracture occurred through the posterior fossa the injury was much more serious because of its proximity to the vital centres in the brain stem. Hence operation became still more urgent in such a case. When there was a fracture through the base of the middle fossa and blood came from the ear it was the duty of the surgeon to carry out a complete mastoid operation at once, so as to remove all disease and expose the dura, and, if possible, separate the dura from the area which had been infected. Regarding prognosis, he said it was very difficult to know which cases would have meningitis. Sometimes apparently hopeless cases got well. He advised that every case should be treated as if it would develop meningitis. In some cases of fracture through the middle fossa the patient had total deafness and facial palsy. The former might recover, but the latter mostly persisted.

Mr. Sydney Scott agreed that a large number of these fractures involved the middle ear and resulted in middle-ear deafness. In another group there were absolute deafness, destruction of labyrinthine functions and of the cochlea, as well as facial paralysis. Usually severe head injuries with aural symptoms were seen in other departments of the hospital, and the aural surgeon only saw at first the less serious cases. He referred to one case of remarkable recovery. A boy fell 10 feet and was brought in unconscious, bleeding from the ear. Pulpy tissue removed from the ear was found to be brain tissue. A year later the boy was normal and hearing was completely restored.

Mr. A. R. Tweedie (Nottingham) urged the necessity of collecting statistics of hospital cases in which the petrous bone and nasal cavities were involved. He thought active interference in these cases should be avoided, except when primary suppuration existed.

Mr. J. F. O'Malley referred to a case in which loss of smell followed fracture of the base in an air officer who had a crash. In that case hæmorrhage occurred from the posterior fossa. Syringing might be dangerous when the tympanic membrane was involved in a fracture.

Mr. Arthur Cheatle exhibited 23 specimens of fractured base of the skull—17 of his own and 6 from the Royal College of Surgeons. The most common type, occurring in 10 out the 23, was one in which a double line of fracture ran, one through the roof of the meatus, and the other through the posterior meatal wall. Obviously, fractures of the base could occur without cerebro-spinal fluid escaping. Such escape meant a rupture and tearing of the membranes or a fracture running through the labyrinth. He thought it could also occur without hæmorrhage from the ear. In 4 of the 23 cases the fracture had been through the labyrinth itself. In 8 of the 23 cases the facial nerve had been completely divided; in 2 of them that nerve was exposed by the fracture. He considered that the cartilaginous meatus should be purified before anything was done to the deep meatus, as the latter did not contain the number and variety of organisms found normally in the cartilaginous meatus. He agreed that if a fracture passed through a known septic middle ear, operation should not be immediately attempted as it would add to the patient's danger.

### *Exhibition of Cases.*

Dr. Dan McKenzie reported a case of otogenic encephalitis in which decompression resulted in recovery.—Mr. F. W. Watkyn-Thomas gave an account of a woman aged 54 who had necrosis of the petrous bone with unusual complications. Her meatus was found to be blocked by a polypus, and after it had been snared, under gas, she went home apparently well. The same night, however, she had violent vertigo, with falling to the right. Tests pointed to the right labyrinth being active, and a radical mastoid operation was done. The mastoid was eburnated and acellular, and cholesteatomatous debris was found in the antrum and a fistula above the ampulla of the external canal. Exploration disclosed turbid fluid under pressure and pus in the labyrinth. The internal auditory meatus was blocked with blood clot. Drainage was carried out, but the patient did not recover.—Dr. Scott Williamson, who made the *post-mortem* examination, explained his findings: necrosis of the whole of the petrous to the apex, disintegration of the Gasserian ganglion, and thrombosis of the cavernous sinus and the internal carotid within the sinus. There was no infection of the sphenoidal air sinuses.

Mr. Scott described a case of fistula of the semicircular canal, causing vertigo, diplopia, and nystagmus. The patient, a woman aged 25, had had chronic suppurative otitis media for several years, and for six months the insertion of a finger into the left ear caused vertigo. He described in detail the symptoms manifested, and the case was fully discussed.

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## MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.

A meeting of this Society was held on Jan. 20th at the rooms of the Medical Society of London, Dr. Wilfrid S. Fox, the President, being in the chair, when a discussion took place on

### *The Diagnosis and Treatment of Urethritis and Cervicitis in the Female.*

Dr. Dorothy Logan, in introducing the subject, said it was her custom to make many examinations in her search for the gonococcus. Certainly at the women's clinics it was hopeless to expect to make a definite diagnosis on first seeing the patient. She examined locally, palpating and expressing the contents of the urethra. Sometimes she obtained ½ drachm to 1 drachm of pus from the latter, when it was not even reddened. Bartholin's glands were also examined, and she used Kusko's speculum for examining the cervix. A bimanual examination followed in order to ascertain what complications were present; and she always took some blood for a complement test. The history given by the patient was received with considerable attention. A statement that rheumatism followed confinement she regarded as significant, as it might mean gonococcal infection. Of 75 new cases, a positive report as to gonococci was returned in only four from film examination, though she felt sure that a considerable proportion had gonorrhœa. Even if a case did not seem very suggestive of the disease clinically she always tried to take three films of it. In a legal case she would not give positive evidence unless gonococci had been actually found, however likely the case was otherwise. Treatment, on the other hand, should not await such positive evidence. She had discovered gonococci in a discharge from the cervix which seemed to be nothing but an excess of clear mucus; also in a discharge which could be described as mucoid, and likewise in a case which had only slight erosion and where there could be obtained only a history of possible exposure to infection two years previously. She was always suspicious of caruncles of any kind. With regard to treatment in a general way, she said she had found vaccines were very useful in the average case. A patient might complain chiefly of pruritus, but there might not be any definite discharge from the cervix or urethra and Bartholin's glands might be clear. Improvement usually followed the use of protargol in glycerine, in packs, and after vaccines the patient usually came back declaring she was quite well. The injections caused little or no discomfort. At a medical discussion she had heard films taken from the vagina described as worthless, but she recently had three cases in which the vaginal film was positive on occasions when those of the urethra and cervix were negative, but later became positive.

Dr. VIOLET RUSSELL said the vast majority of cases of cervicitis were due primarily to the gonococcus. In doubtful cases that organism could usually be demonstrated if looked for on a number of occasions. The most serious damage wrought by the gonococcus was to render the tissues attacked by it susceptible to infection. Urethritis was said to occur secondarily to a *B. coli* pyelitis; this diagnosis, however, should only be made after bacteriological examination had excluded the gonococcus. She had encountered three cases of *B. coli* pyelitis complicating an attack of gonorrhœa without there having been any intervening cystitis. In examining the vulva the burrowing habits of the gonococcus must be kept in mind, and special attention paid to the orifices of Bartholin's ducts, and to the urethra and its ducts. The urethra might seem to be normal, but on milking it a drop of mucoid or purulent secretion might appear, and this rendered the case suspect. A cervicitis presented more difficulties in making a diagnosis, owing to the possibility of sepsis after laceration at a confinement. And there was a class of gonococcal infection in which the cervix was badly eroded, but the urethra was apparently unaffected. Many films must be examined before the case could be pronounced not gonococcal. Sometimes gonococci could not be found until the septic discharge had been cured. The films should be taken from the interior of the cervix immediately after menstruation. Films from the rectum might be positive in a case in which they had been consistently negative from the cervix and urethra, even when there were no signs of proctitis. The diagnosis of gonorrhœa in a pregnant woman might be very difficult, owing to the congestion of the parts caused by their high vascularity. Bacteriology was the safe standby.

Dr. Russell described several types of gonorrhœa. Those of chronic gonorrhœa could be divided into those with discharge but no hyperæmia, those with hyperæmia but no obvious discharge, and those having both congestion and a discharge. The most favourable class for treatment was the first of these; the most numerous class was the third. She said she had seen several instances of mild vaginitis after the use of quinine pessaries. Vaccines she had not found of much service, but injections of collosol manganese sometimes helped. Patients with gonorrhœa should avoid getting hot, as heat increased the discharges. Local treatment required patience and perseverance, and she thought that rapid and certain cure could only be secured in a few cases which came in the very early stage. Dr. Russell described many cases, and detailed the treatments she followed in the various conditions.

The PRESIDENT spoke of two male cases of very severe dermatitis and swelling of the penis following the use by the wives of quinine pessaries.

Dr. FELIX PEDROSO (Brazil) described a suction apparatus for clearing the female genitalia of discharge and residue, which he had used in 3000 cases. In some the discharge disappeared after one use.

Dr. B. B. SHARP insisted that cultures were necessary in these cases, as well as smears, and referred to cases the nature of which was established by doing cultivations when the smears taken had been always negative.

Dr. T. J. WRIGHT (Norwich) said that for obstinate cases of gonorrhœa in the female he found diathermy more useful than any other measure.

Colonel L. W. HARRISON also stressed the fundamental importance of taking cultures for diagnostic purposes, especially as there were many micro-organisms indistinguishable from the gonococcus on smears. In treatment the important matters were good drainage and increasing the patient's resistance.

Dr. DAVID WATSON (Glasgow) had a good word for the examination of smears in diagnosis, especially in expert hands.

Dr. T. ANWYL-DAVIES said his experience was that temperatures even up to 112° F. did not kill the gonococcus, at least in the female.

Dr. LOGAN and Dr. RUSSELL briefly replied.

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## NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

AT a meeting held in Manchester on Jan. 15th, when Mr. W. GOUGH (Leeds), the President, took the chair, Prof. H. BRIGGS showed two specimens illustrating the advantages of

### *Vaginal Hysterectomy.*

The first was a uterus (1 lb. 3½ oz.) with multiple fibroids mainly in the lower uterine segment; the largest was low down on the left side and was fixed upon the pelvic floor. The second was a uterus (4 oz.) from a case with first and second degrees of prolapse on a weak pelvic floor. There was glandular erosion of the cervix, and a sessile adenoma and an interstitial fibroid of the body of the uterus. Compared with the size of the normal pelvic cavities in which each uterus lay at a low level, the one specimen was large and the other small. Vaginal hysterectomy had been done in both cases.

Were there any advantages, Prof. Briggs asked, in vaginal hysterectomy for non-malignant uterine growths? This was not, perhaps, a question to be pushed unduly. Dr. Johnson had said that "questioning is not the mode of conversation among gentlemen." For himself, Prof. Briggs was quite content with the success and safety of the operation, where the site and size of uterine innocent new growths pointed towards the pelvic floor. The pelvic floor was a continuation of the abdominal wall and each had its claims. Not infrequently the laxity of the floor was of assistance in performing vaginal hysterectomy, and at the close of the operation the surgeon had an opportunity to correct the defect. This was done in the case with prolapse from which the smaller uterus had been removed. The temperature had once been 100° F. during the first five days after operation, but otherwise there had been normal convalescence and repair.

Vaginal hysterectomy in this (its lighter) phase was bright in prospect and easy in performance. The heavier phase was represented by the first specimen, which was large enough to fill the outlet of the pelvis and stick there pending reduction of its bulk. Morcellement or enucleation, or some equivalent procedure, would convert an impassable ovoid or sphere into a flexible yielding column, whilst the preservation of the pelvic floor must be ensured. Morcellement was conducted on tissues which were to be removed, and they must not be retained at the patient's risk.

After Pean had introduced morcellement in the 'eighties of the last century, it early trespassed, in its excess, on the preserves of abdominal hysterectomy. But the overlapping had not been one-sided. In 1808 Prof. Briggs had published a report of 13 cases of vaginal hysterectomy for fibroids and had confirmed the value of morcellement. Operation by the vaginal route was still consistent with the higher interests of gynæcology.

The PRESIDENT said that in his earlier days he had done vaginal hysterectomy for fibroids, some of which reached the umbilicus. Of recent years, however, he had used the abdominal route for such tumours, because the operation was easier and the work was done by sight. Vaginal hysterectomy, nevertheless, was useful in the treatment of the bleeding uterus about the menopause, for it was associated with much less shock than the abdominal operation. He had found that convalescence was often rather delayed by discharge of pus and small sloughs from the vagina.

Dr. A. DONALD said that at one time he had quite often removed uterine fibroids by the vaginal route. In some of the cases the upper level of the tumour had been as high as the umbilicus. It had been an interesting experience, and he thought that even at the present time a gynæcologist should be familiar with the technique. Now, however, the operation should be reserved for cases of chronic metritis or hypertrophy in women approaching the menopause who had fairly patulous vaginæ. In such cases it might still be indicated. The convalescence was generally a smooth one, and free from some of the discomforts that often followed the most successful abdominal operation.

Mr. M. H. PHILLIPS and Dr. J. E. GEMMELL also spoke, and Prof. BRIGGS replied.

### *An Unusual Monstrosity.*

Miss K. EDGECOMBE, in conjunction with Miss FRANCES IVENS (both of Liverpool), reported a case of dicephalus dibrachius dipus which occurred at the Liverpool Maternity Hospital. The monster, which was born after a long and difficult labour with severe laceration of the perineum, had the following characteristics:—

A double-headed female, weighing 6 lb. 15 oz. There are two distinct heads, two arms, two legs, and a single body which shows, on radiographic examination, two distinct spinal columns approximating in the sacral region.

On dissection it appears that the abdominal and thoracic cavities are single; there is one sternum and two clavicles. There is a single heart and pericardium with one auricle and two ventricles, two aortæ, two pulmonary arteries, two superior venæ cavæ, and one inferior vena cava. The right aorta supplies the right head and upper limb only; the left aorta supplies the left head and upper limb and continues as a normal thoracic and abdominal aorta. There is a trachea from each head leading to four lungs in four pleural cavities. The organs developed from the branchial arches and clefts are duplicated (tongue, thymus, thyroid). The alimentary canal is duplicated as far down as the duodenum. The right stomach opens into the first part of the duodenum; the left stomach into the second part of the duodenum. The spleen is single and in a normal position on the left side. The liver is normal in position. An accessory lobulated portion continuous with the normal liver forms a hernia through the diaphragm and lies in the thoracic cavity posterior to the heart and pericardium. There is a single gall-bladder and bile-duct, the pancreas being double. Below the duodenum the alimentary canal is single. The kidneys, ureters, suprarenals, and female pelvic organs are those of a single fœtus.

As all double malformations develop from a single ovum, there is a single placenta and single chorion.

Following bibliographical and other comments by Miss Edgecombe and some discussion on the labour, Mrs. BARTON HALL (Liverpool), who made the dissection, said that after going through the literature on dicephaly since 1860, when Playfair collected seven cases, she had found 37 published cases from all parts of the world. Studying their anatomy, she had divided them into three main groups dependent upon three stages in the superior dichotomy of the primitive streak. The first group, which was rare, was the true dicephalus dibrachius dipus, of which Miss Ivens's specimen was an example. The second and common group included those specimens which resembled the first group externally, but on dissection or X ray examination were found to have a rudimentary third upper limb in the form of a fused scapula and clavicle. The third group was the true dicephalus tribrachius tripus, and occurred with about the same frequency as the first group. She believed that the lungs and œsophagi in these cases of dicephaly were always reduplicated, and that the extent of the reduplication in the rest of the thorax and abdomen depended entirely upon the level of separation. As to viability, she thought that the greater the degree of separation the more chance there was of the fœtus being viable. One case of dicephalus tribrachius tripus delivered alive had lived 24 days.

Dr. DONALD, Mr. PHILLIPS, and Miss IVENS took part in the discussion, and Miss EDGECOMBE replied.

Amongst other proceedings Dr. J. W. BURNS (Liverpool) described a case of carcinoma of the cervix with pregnancy, and Miss EDGECOMBE—on behalf of Miss IVENS and Dr. R. W. BROOKFIELD (Liverpool)—reported a case of Naegele's pelvic deformity.

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## BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Feb. 4th, Mr. H. J. WALKER, the President, in the chair, when Dr. DONALD HALL read a paper on the

### *Treatment of Pulmonary Tuberculosis by Artificial Pneumothorax.*

Dr. Hall said that during the past six years he had been successful in establishing an efficient collapse in 15 patients. It was difficult to obtain material, for in hospital practice patients were now under the care of tuberculosis officers and only found their way to the out-patient department accidentally; whilst in private practice most cases were in sanatoriums or under the care of specialists. In this country the treatment had not yet received the recognition which it deserved, for although it was only applicable to some 5 per cent. of cases, it offered them hope denied by any other method. The apparatus he used was that of Vere Pearson and Lillingston; although rather cumbersome in size it was simple and easy to use and easy to keep clean. For the initial puncture he preferred Riviere's trocar and cannula. In the selection of cases not only the extent but also the activity of the disease in the "healthy" lung must be considered. Care must be taken, in acute cases especially, not to produce too high a pressure, and thus incommode the sound lung. Speaking generally, the optimum pressure was the minimum which kept up collapse. There had been a tendency of late to suggest that partial collapse might be preferable to complete collapse. Of this he had no personal experience. In his three cases in which collapse had been incomplete (although therapeutically adequate) it had been impossible to collapse the lung fully owing to pleural adhesions, and so far he had always aimed at bringing about complete collapse. Of this the decisive test was the absence of respiratory movement on the fluorescent screen. In four patients, otherwise suitable, pleural adhesions had baulked him completely. He had met with one instance of embolism, in a patient who was having her last refill prior to leaving hospital for her home in the country. A minute after he had withdrawn the needle the patient had conjugate deviation of the head and eyes and went off into an epileptiform fit. She recovered, but had a permanent hemiplegia, and the treatment was discontinued. Presumably the needle had perforated an adhesion containing pulmonary tissue, for the lung was well collapsed at the time.

Dr. Hall illustrated his paper by cases and lantern slides.

Dr. **NEVILLE COX** said that pneumothorax treatment was necessarily constantly in the mind of those who, as tuberculosis officers, were handling large numbers of cases of phthisis. The difficulty was in defining the suitable cases. Definite evidence of breaking-down lung, as shown by elastic fibres in the sputum, was one indication. Certainly collapse treatment should not be jumped at without adequate trial of other methods, though to defer it too long might be to lessen the chance of success. There was also scope for much judgment during the conduct of the treatment—in deciding the intervals for refills and the pleural pressures suitable to the individual case, and especially in guiding the patient safely through the period of "pleural reaction," when it might be advisable to avoid refills for the time being. When to stop the treatment and allow the lung to re-expand was another difficult question to decide; there were probably many cases in which it was best to continue the refills indefinitely. No sensational figures of successful results were to be expected, but in view of the otherwise hopeless outlook of most of these patients even a small percentage of permanently good results justified the treatment, and in a large number of other patients pneumothorax treatment gave years of useful life, relief from unpleasant symptoms, and lessened infectivity towards other people. There were still a large number of patients dying annually in this country who might have been helped by its timely adoption.

## BRISTOL MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held on Jan. 13th Mr. E. R. **CHAMBERS** read a paper on the

### *Ocular Signs of Migraine.*

Visual phenomena, he said, form one of the most constant and striking features of migraine. Often the prodromata occur alone, the usual headache not ensuing; the prodromal symptoms are *not* painful. Temporary blindness, flashes or balls of light, or of colours, are frequently noted.

We have only hypotheses, said Mr. Chambers, to explain these signs. There is clearly a disturbance of function in certain parts of the cerebral hemisphere—probably in the cortex. This disturbance is crude, and appears to leave a transient inhibition. Perhaps vasomotor spasm, leading to anæmia, is the cause; the retinal arteries, at least, are markedly contracted at this period. Many of the visual disturbances resemble the aura of epilepsy, but the two conditions only rarely coexist. Apart from the arterial condition mentioned, examination of the eyes reveals little. The pupils are usually dilated but react; they may be in a state of hippus. The arterial spasm is best seen peripherally in the fundus, and is greater during the prodromal stages than later. The veins are unaffected and Mr. Chambers has not observed arterio-sclerosis. Small central scotoma for white may be found, with a large blind spot for red and green. Various forms of spots, haze, scintillation, balls of light, amblyopia, and other symptoms are reported by patients. As a rule, after such prodromata comes a typical attack of migraine, with subsidence; but rarely the blindness is of longer duration, up to several hours. There is a marked tendency for migraine to run in the family, and Mr. Chambers considers that such severe disturbances can only be explained by circulatory changes from nervous causes, presumably in the occipital lobe. The most interesting prodromal sign is the rare transient homonymous hemianopia. This may appear late in the history of a case after many more typical attacks. Cases of this variety are recorded in which the loss of vision was permanent.

A rare group of cases, said Mr. Chambers, suffer from ophthalmoplegic migraine of Charcot, and in these the paralyses may become permanent. This disease usually supervenes late in the history of a case of migraine, hitherto of ordinary type. The third nerve is usually affected, but the intrinsic muscles escape. Probably these cases should not be classified as migraine. Treatment of migraine from the ophthalmic point of view resolves itself into (1) correction of errors of refraction, which may sensibly lighten the incidence of attacks, but will probably not do more (for it is the *small* errors that affect migraine), and (2) correction of errors in muscle balance. The latter is probably the more important.

Colonel A. E. **LISTER** said that in his experience of migraine the order of the symptoms was sometimes reversed; that is, the typical ball of light was noted in the attacks of early youth, but disappeared in later life.

Dr. J. R. **CHARLES** asked why Mr. Chambers considered that the cerebral cortex was involved in migraine. He himself regarded migraine as due to pituitary swelling; it was known that at times alterations in the thyroid or ovary caused changes in the pituitary. The anatomical relations appeared to favour his view. The vascular and nervous structures, including sympathetic supply in the immediate neighbourhood, would explain the local symptoms, and glycosuria, polyuria, anarthria, and diarrhœa seemed to point to the pituitary. He found that pituitary lesions generally produced not bitemporal hemianopia but homonymous.

Dr. H. H. **CARLETON** agreed that the cortex could not be the site of the lesion, especially if migraine of the Charcot type with ophthalmoplegia was included. This variety could not be cortical. He suggested that pure perception of light was of the nature of a protopathic sensation; vision, as we knew it, was epicritic. Spasm of the ophthalmic artery suppressed the latter and released the former to consciousness. He could not, however, conceive that a pituitary swelling—apart from a gross enlargement—could affect the structures in the cavernous sinus or in its walls. In his experience the hemianopia of pituitary tumour was bitemporal.

Mr. **CHAMBERS**, replying, could not accept Dr. Charles's suggestion that pituitary swelling explained the syndrome of migraine. Nor did he think that the Charcot type was a true migraine. He agreed that blindness might quite well be retinal and not cortical.

Mr. E. **WATSON-WILLIAMS** showed two cases of carcinoma of the vocal cord in men.

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**HEART DISEASE IN CHILDHOOD.**—At the annual meeting of the Leeds Invalid Children's Aid Society Dr. C. W. Vining said that the society's children's home at Thorparch stood for the treatment of a type of case which had not received enough attention from the medical profession or the public. There was a children's hospital of over 100 beds at the Leeds Infirmary, and the acute case was well dealt with there, but the infirmary could not properly fill the needs of the chronically ill and physically defective child. That was the task the society had set itself, and he hoped that its efforts would be crowned by the State doing more for this kind of case. In particular rheumatic children needed more care. Nearly all heart disease in children was due to rheumatism, and one-half of all heart disease—which caused one-eighth of the deaths in the community—started in childhood. Most of the damage was done between the ages of 5 and 15. If the rheumatic child was properly cared for; if, during the acute phases of the infection it was kept at rest; and if early cardiac cases were given regulated rest and regulated exercise, over months or even years, then the incidence of heart disease and the severity of it would be greatly lessened.

# Reviews and Notices of Books.

### CARDIOLOGY.

*Les Syndromes d'Aortite Postérieure.* By CH. LAUBRY, A. MOUGEOT, and J. WALSER. Paris: Octave Doin. 1925. Pp. 234. Fr.35.

Dr. Laubry and his colleagues have broken new ground in their survey of the clinical manifestations of lesions of the descending aorta. Considering the prevalence of pathological changes revealed post mortem both in the aorta and in its branches, it is surprising that these conditions, apart from aneurysm, should so rarely be diagnosed during life.

The volume opens with a concise description of the morbid anatomy of the different forms of aortitis, illustrated by three beautiful coloured plates. There follows a full discussion of the functional significance of the elastic properties of the aorta, the way in which these properties are modified by disease, and the methods by which the degree of functional impairment can be measured. The next three chapters contain a description of the chief symptoms of aortitis and of the clinical and experimental methods which are of service in its diagnosis. Of the latter, radiological examination and measurement of the velocity of transmission of the pulse-wave are of primary importance. The remainder of the book is devoted to a consideration of the different clinical types of the disease, with a final chapter on differential diagnosis. The clinical features of the various types of affections of the descending aorta are well illustrated by reference to actual cases, and the X ray photographs are convincing, being most successfully reproduced.

Further researches, both clinical and experimental, are needed to simplify what is at present a difficult and a complicated subject; but clinicians, and especially workers in cardiology, will find much valuable information in this book.

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*Studien zum Problem des Pulsus Paradoxus.* By Dr. L. J. VAN DER MANDELE. Vienna: Julius Springer. 1925. Pp. 80. 7s.

IN this book, to which Prof. Wenckebach contributes an introduction, Dr. van der Mandele describes the types of paradoxical pulse and its relation to clinical conditions. A complete survey of the literature has been made, 145 papers being quoted. The author describes three types of pulsus paradoxus: (*a*) extra thoracic, (*b*) dynamic, and (*c*) mechanical. The extra thoracic is described as of physiological origin and may be demonstrated by compression of the subclavian artery. The dynamic variety is found in certain respiratory, cardiac, and circulatory diseases, such as degeneration of the heart muscle, conditions causing low blood pressure, and pericardial effusions. The mechanical type is best seen in adhesive pericarditis and other adhesive conditions of the chest wall. The author points out that the recognition of this particular form of graphic pulse may be of aid in diagnosis, and the progress of certain diseases may be followed by the appearance and disappearance of the various types. Numerous figures are given of pulse and respiratory tracings demonstrating the types of paradoxical pulse. It is unfortunate that records of the intrinsic heart action have been omitted, for simultaneous electrocardiograms and pulse tracings would undoubtedly be of interest.

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### BASAL METABOLISM.

By JOHN T. KING, Jr. Baltimore: Williams and Wilkins Company; London: Baillière, Tindall and Cox. Pp. 118. 12s. 6d.

IN a book of about 100 pages a not very successful attempt has been made to give an account of methods of determining basal metabolism and also of the results in different diseases. Twenty pages are allotted to the study of the anatomy of the thyroid gland and the metabolism in thyroid disturbances, while an account of the effect on the basal metabolism of all other diseases is compressed into eight pages. The book is written primarily for the American public. The Douglas bag method, much used in this country, is not mentioned. From the description of the Tissot method it might be inferred that the way to calculate the oxygen consumption is to subtract the percentage of oxygen in the inspired air from the percentage in the atmospheric air, multiply by the ventilation, and divide by 100. No hint is given that it is necessary to take into account the fact that the inspired air suffers a diminution in volume after leaving the lungs, since the respiratory quotient is always less than unity. Again, the author suggests that in the oxygen "closed circuit" method, which is mostly used in the routine determination of basal metabolism, it is not necessary to absorb the carbon dioxide. Such errors diminish the value of the book.

There is a very complete bibliography which has evidently been compiled independently of the rest of the volume, since many of the references given are not mentioned in the text. This seems to be a fairly common but not very satisfactory custom in recent monographs.

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### POISONING.

*Murrell's "What to do in Cases of Poisoning."* Thirteenth edition. Revised by PHILIP HAMILL, M.D., D.Sc., F.R.C.P., Lecturer on Pharmacology and Therapeutics, St. Bartholomew's Hospital Medical College; Physician to the Metropolitan Hospital; late Examiner in the University of London. London: H. K. Lewis and Co., Ltd. 1925. Pp. 270. 4s. 6d.

THIS book has stood the test of time mainly because it supplies just what is needed in an emergency, being brief, lucid, and accurate. To have seen 13 editions in 44 years is no mean record for a medical work. Dr. Hamill, who is responsible for this and the previous edition, has maintained fully the object and purport of the work and has been thorough in revision. At the same time he has managed to retain the individuality of the earlier editions for which Dr. Murrell was responsible. In the introduction a complete list is given of the essential contents of the antidote-case which every practitioner should keep handy. To this list should be added a copy of Dr. Hamill's excellent little handbook.

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### PULMONARY TUBERCULOSIS.

*La Tuberculose Pulmonaire.* Études de phtisiologie clinique et sociale. Second edition. By LÉON BERNARD, Professor in the Medical Faculty of Paris and Physician to the Laënnec Hospital. Paris: Masson et Cie. 1925. With 16 illustrations. Pp. 400. Fr.28.

THIS, the second and completely revised edition of Prof. Bernard's book, presents a series of studies of certain aspects of the tuberculosis problem rather than a detailed exposition of the disease in the usual text-book manner. It does so from the French point of view almost exclusively, and few but French writers receive mention, although warm appreciation is paid to the work of Varrier-Jones at Papworth. Dr. Bernard's creed can be summed up briefly: heredity plays no part, direct or indirect, in the transmission of the disease, contagion being the sole and exclusive factor. Primary infection is glandular, and the child becomes liable to it from birth onwards. The significance of heredity would, therefore, lie in the unbroken chain of infection from forbear to descendant. The mass of the dose will determine the seriousness of the infection and is more likely to arise in the intimacy of domestic circumstances than under casual conditions. The primary infection may produce immunity, either complete or partial. If partial only, there may be recurrence by endogenous reinfection from the primary, hitherto latent, lesion, or from exogenous sources, but these later manifestations of the disease will differ profoundly from the earlier, since, following Koch's experiments, they will not be glandular. The specific defences of the body evoked by the primary infection are now in operation and the disease develops in the forms observed characteristically in the adult.

Terse and epigrammatic, the book makes piquant reading, and there is never any doubt as to the author's convictions. It is refreshing to note that "there are no pre-tuberculous; either men are tuberculous or they are not," for this pre-tuberculous doctrine appears to have attained an importance in tuberculosis that no one seems to claim for its counterpart in measles or mumps. A short but sufficiently adequate description of the signs and clinical forms of the disease and its relation to maternity leads on to an account of methods of treatment. So-called specific treatment, vaccine or serum, is dismissed as utterly useless. There is a careful examination of the conditions necessary in the construction and administration of sanatoria, and the author dispels the illusion that the value of a site for a sanatorium is to be measured by its height above sea-level. Various social factors, family and school life, military service, industrialism and alcoholism are discussed at length. Alcohol favours tuberculosis because of the misery and poverty it brings with it; it hardly seems logical or convincing, however, to urge that the fear of phthisis should be used as one of the most powerful arguments against drink. The dispensary system in France labours under many difficulties, legal and financial; meanwhile the mortality from the disease, in France as elsewhere, is lessening, due, in the author's opinion, to factors involving directly and indirectly the hygienic conditions of man in the mass and collectively. It is like the echo of a long-forgotten controversy to read the pros and cons of compulsory notification. Let France take heart from our example; it is a useful measure and may be adopted without misgiving.

Altogether a delightfully-written book, easy even for the reader with limited French, provocative and stimulating.

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### CHEMISTRY.

*Smith's Elementary Chemistry.* Revised and rewritten by JAMES KENDALL, Professor of Chemistry, Columbia University. London: G. Bell and Sons, Ltd. 1925. Pp. 442. 5*s.*

THE title of this book suggests just one more of the almost innumerable books devoted to elementary chemistry. However, those familiar with the writings of the late Dr. Alexander Smith are accustomed to expect something out of the ordinary, and here they will find such expectations realised. The book has been entirely rewritten, but it is claimed in the preface that "every effort has been made to leave the volume a characteristic Smith text." The epithet elementary in the title is appropriate only in the sense that the work does not deal exhaustively with every subject it mentions. A very much wider field is covered than in most elementary text-books; thus, in addition to the matter on inorganic chemistry and that on physical chemistry quite an appreciable amount of space is devoted to organic chemistry, including the subjects of plant life and products and animal life, the composition of foods, digestion, and so on. The treatment of many of these subjects must, of necessity, be cursory and in that sense elementary, but he must indeed be a dull reader whose interest in chemistry is not stimulated by the perusal of such a book. Throughout the text no pains have been spared to give practical applications of the principles and processes described, and there cannot be many elementary books on chemistry to which one could refer for information on such varied subjects as gas warfare, fire extinction by foam, high speed and other steel alloys, synthetic plastics, blue-prints, atomic disintegration, and isotopes. Altogether this is one of the most readable books on chemistry we have seen for a long time, and its value is enhanced by the inclusion of a number of very interesting illustrations.

### THE SCIENCE OF HAPPINESS.

By HAROLD DEARDEN, M.R.C.S., L.R.C.P. London: William Heinemann. 1925. Pp. 344. 10*s.* 6*d.*

THIS cheerful book advises us on how to handle our ideas, emotions, and strivings to the best advantage. Dealing with the mind entirely upon the plane of consciousness, with the exception of a short chapter on the subconscious mind and dreams, the author belongs to the intellectualist school of psychology and believes that by taking thought about ourselves we can bring all our mental operations under our own control. So far does he pursue the intellectualist theory that in his consideration of *interest* and *attention* he makes no distinction between voluntary and involuntary attention. On p. 176 he says that "Even the most normal person, if he does not definitely and consciously adopt a 'mental set,' will tend to wander on from idea to idea in this aimless sort of way..." From this one judges that the author believes that our hobbies and prejudices and all the other bees in our bonnets are consciously adopted and can be wittingly altered—a psychology which is no longer generally held. It is when he touches upon the pathological that the weakness of his position is manifest; for example, in speaking of obsessional dreads he advises the sufferer to concentrate on those associated ideas which render that precise object harmless or pleasant for ordinary folk. This sounds easy, but the obsessional patient has usually tried it before he seeks advice.

In spite of these criticisms we believe that the simplicity of the author's psychology will be acceptable and helpful to many people, that the book may do good and cannot possibly do harm.

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## JOURNALS.

BRITISH JOURNAL OF SURGERY.—The January number opens with Sir D'Arcy Power's nineteenth eponym on Thomas's hip splint.—In discussing traumatic neuritis of the ulnar nerve H. Platt describes three types in which the nerve lesion is associated with recent or old-standing fractures and with recurrent dislocations; he considers that the only satisfactory treatment is the anterior displacement of the nerve.—A. H. Edwards describes a new operation for the repair of the crucial ligaments of the knee.—The radiological and clinical diagnosis of tuberculous glands in the ileo-cæcal angle is discussed by L. R. Braithwaite.—G. P. B. Huddy reviews 109 cases in whom an internal urethrotomy had been performed, and contributes a most instructive paper on the indications, contra-indications, and treatment.—G. Scott Williamson contributes a somewhat fresh view of the problems surrounding the disordered secretions of the thyroid gland.—W. Billington and H. Round report seven cases of successful bone-grafting of the mandible for civil injuries. The graft is taken from the crest of the ilium and is placed in position between the ends of the jaw, and after the wound is healed correct alignment of the mandible is ensured by the use of a dental splint.—A method of completely exposing the radius for excision or drainage is given in detail by A. K. Henry.—Sir Lenthal Cheatle contributes a long paper on epithelial hyperplasias of the breast, in which he suggests that there is a *definite sequence of events in the epithelial changes* in the breast that end in carcinoma, and further he submits that these are identical in time and sequence with those occurring in the skins of men and animals after the application of tar.—Sir Charles Ballance, L. Colledge, and L. Bailey record their results in some further experiments in nerve anastomosis. These comprise two groups, one in which the central and peripheral ends of a divided nerve were implanted into the neighbouring normal nerve at varying distances. In the other group certain nerve trunks were divided and anastomosed in cross-wise fashion. In both the results are encouraging.—F. G. Ralphs records a case of paralytic ileus following fractured ribs treated by ileostomy and recovery.—W. B. Gabriel describes a case of a guillotine amputation stump needing a plastic operation to cover it, a flap being taken in the usual way from the abdomen.—The following rare or obscure cases are described: 1. An unusual complication in operating on large tumours in the neck. The right vagus was stretched over the tumour and had to be dissected clear (H. Halliday). 2. Suppurating thyroglossal cyst (W. E. M. Wardill). 3. Mucous cyst of the tongue (E. I. Lloyd). 4. Rhabdomyoma of the tongue (G. Keynes). 5. Cystic pneumatosis of the small intestine (S. H. Pugh). 6. A case of imperforate anus with megacolon and terminal peritonitis (R. W. Jones). 7. Pulsating goitre with recurrent dislocation of the eyeballs (H. Burrows). 8. Thyroid gland tissue in a dermoid cyst of the ovary (E. H. Shaw). 9. Traumatic rupture of the hepatic duct (S. A. Wallace and A. Spiro). 10. Hernia through the foramen of Winslow with secondary rupture through the gastro-hepatic omentum (E. Rock Carling and A. T. Smith). 11. Acute ascending parenchymatous enteritis causing paralytic ileus (V. Z. Cope).—The pathological atlas deals with some benign tumours of bone.

QUARTERLY JOURNAL OF MEDICINE.—The January number contains the following articles. Heart Failure with Normal Rhythm, by John Parkinson and A. E. Clark-Kennedy. In the majority of cases of heart failure auricular fibrillation is present; failure with a normal rhythm is comparatively rare. A series of 100 such cases has, however, been collected by searching several large hospitals; patients suffering from acute infections, infective endocarditis, or rheumatic carditis in children were not included. The cases were found to fall into certain groups, such as cardio-vascular syphilis, high blood pressure, and chronic lung disease. The prognosis is more unfavourable in heart failure with normal rhythm than when the auricle is fibrillating. An account is given of the pathological changes present in those cases in which an autopsy was performed.—A Case of Malignant Change Developing in a Tumour of the Recto-genital Pouch associated with Diffuse Infiltration of the Lungs and Intense Erythræmia, by Stanley Barnes, A. P. Thomson, and F. W. M. Lamb. The patient, the details of whose illness are here recorded, was an unmarried woman of 28 years, whose chief symptoms were intense cyanosis and dyspnœa. Blood examination showed an erythræmia, but there was no enlargement of the spleen, and no signs of congenital heart disease or of mediastinal growth. At autopsy a diffuse sarcomatous growth was found in the lungs interposed between the alveolar epithelium and the pulmonary capillaries. The primary growth was a small adenomyoma of the recto-genital pouch, which had undergone sarcomatous changes. A plate is included illustrating the histological appearances of the primary growth, an infiltrated lymph gland, and the lungs.—The Blood-fats in Diabetes Mellitus in Relation to Treatment, by A. C. White. There are many conditions associated with an increase of the fats in the blood, and of these the commonest is diabetes mellitus. Investigations were carried out upon 13 cases of diabetes, the majority of which were treated by insulin. The various factors which might influence the blood-fat level are considered, but no definite correlation between them was obtained. The value of the estimation of blood-fats as a prognostic guide in diabetes has not yet been established.—Observations on the Development of Contralateral Disease in Artificial Pneumothorax Therapy, by Maurice Davidson. An interesting account is given of the progress of 22 cases of pulmonary tuberculosis and four of bronchiectasis in whom an artificial pneumothorax was established for therapeutic purposes. In four other cases the diagnosis was uncertain and a pneumothorax was used as an aid to diagnosis in conjunction with radiology. The development of active contra-lateral disease in tuberculosis is a factor which may annul the beneficial effects of an artificial pneumothorax, and the author has made a careful study of the processes which influence its occurrence. Among the conclusions arrived at is that the activity of disease in the relatively sound lung is of far greater importance than the extent of lung thus affected; in acute cases, also, the probability of the disease showing itself in the uncollapsed lung is greater than in chronic pulmonary tuberculosis. Observations were made upon contra-lateral pressures, and excessive pressure due to mediastinal displacement may give rise to ill results entirely remote in their effects. The article is well illustrated by numerous X ray plates.—Nerve Irritation and Aortic Lesions: An Experimental Study, by R. Cunliffe Shaw. Experiments are recorded which were performed upon rabbits to determine the effect of nerve lesions upon arterial changes. The nerves were stimulated electrically or subjected to operative irritation. In the great majority of cases irritation of the vagus or the cervical sympathetic nerves resulted in endarteritis of the aorta. Full details of the nature of the experiments and of the arterial changes found are included in the paper, and the pathological appearances are shown in a series of three plates.—Can Insulin Produce even a Partial Cure in Human Diabetes Mellitus? by G. A. Harrison. This paper was noticed in THE LANCET of Jan. 30th, p. 245.

JOURNAL OF INDUSTRIAL HYGIENE, January, 1926. Under the title of the Thermal Index of Atmospheric Conditions and its Application to Sedentary and to Industrial Life, C. P. Yaglou usefully summarises much detailed investigation carried out in America on ventilation. The thermal condition of the atmosphere being recognised as the determining factor in heat loss and, therefore, of great importance to human comfort, steps were taken to set up an effective temperature index. This was done by recording the sensations of individuals exposed to varying atmospheric conditions. The effective temperature conditions so ascertained were found to be correlated with physiological phenomena, such as body temperature, pulse-rate, blood pressure, body-weight, and basal metabolism. Charts are given showing how the effective temperature can be calculated by varying conditions of air velocity and dry and wet bulb temperatures. When effective temperature is constant the physiological reactions are practically constant. When the effective temperature increases the reactions correspondingly increase. The claim is made that the index found for effective temperatures is more reliable than an estimate by use of the kata-thermometer. Instances are given of practical application in different industries of the method proposed. The treatment by industry of accidents with a view to restoration of function and lessening incapacity is discussed by L. E. Hertslet, who writes from experience in the Transvaal. He points out the financial loss at present sustained, and the value to industrial economics of rehabilitation treatment. He refers in particular to treatment of large septic wounds, of fractures, injuries of the muscles and tendons, of burns, and injuries of the back, and to the value of plastic surgery and of well-constructed artificial limbs. The organisation upon which action should be built is discussed with careful consideration of various methods of modern treatment. His appeal is that industries will find here a sound financial investment, and he is prepared to guarantee a successful issue.

TERAPIA CONTEMPORANEA.—Under this title a new Italian medical monthly has been appearing for some months, edited by Senator G. Pascale, of Naples, and Prof. G. Klemperer, of Berlin, with the help of several hundred of the first authorities of universities in all countries, including Germany, Austria, Italy, France, Switzerland, U.S.A., and Russia. The numbers which have already appeared include original articles by Pascale, Klemperer, Von Haberer, Bectorow, Fuchs, Pregl, and others. The new journal will conduce to the furtherance of the scientific working together of the nations and we wish it the best success.

# Reports and Analytical Records.

## MALVERN WATERS: (1) STILL PURE NATURAL WATER OF MALVERN; (2) SPARKLING "MALVERNIA."

(W. AND J. BURROW, LTD., THE SPRINGS, MALVERN.)

ANALYSIS of (1) still pure natural water of Malvern, and (2) sparkling "Malvernia" (from the St. Anne's spring, Malvern) gives the following results :—

| | (1) Still. | (2) Sparkling "Malvernia." |
|---|---|---|
| Appearance | Brilliant | Brilliant |
| Sediment | Nil | Nil |
| | Parts per million. | |
| Free ammonia | 0·03 | 0 08 |
| Albuminoid ammonia | 0·05 | 0 05 |
| Oxygen absorbed (3 hours) | 0 055 | 0·24 |
| | C.C. per litre. | |
| Carbonic acid gas | — | 4500 |
| | Grains per gallon. | |
| Total solids before ignition | 4·18 | 127·9 |
| Total solids after ignition | 3·78 | 116·7 |
| Loss on ignition | 0·70 (slight browning) | 11·2. (no browning) |
| | Grains per gallon. | |
| Chlorine (Cl) | 0·49 | 48·1 |
| Sulphuric acid ($SO_3$) | Trace | 0·96 |
| Nitric acid ($N_2O_5$) | Nil | Nil |
| Lime (CaO) | 0 7 | 13·48 |
| Magnesia (MgO) | Trace | 7·75 |
| Soda ($Na_2O$) | 0·43 | 12·7 |
| Silica ($SiO_2$) | 0·84 | 0·28 |
| Iron and alumina | Nil | Nil |

The above are probably combined as follows :—

| | Grains per gallon. | |
|---|---|---|
| Salt (NaCl) | 0·82 | 79·2 |
| Calcium carbonate ($CaCO_3$) | 1·26 | 24·1 |
| Magnesium carbonate ($MgCO_3$) | — | 16·1 |
| Sodium sulphate ($Na_2SO_4$) | Trace | 1·8 |
| Silica | 0·84 | 0 28 |

Both these waters are of a high degree of organic purity, as evidenced by the minute quantities of free and albuminoid ammonia and the low oxygen absorption. The still water is very soft and contains only extremely small quantities of dissolved salts. The sparkling water, on the other hand, is very saline, the principal mineral constituents being salt and the bicarbonates of calcium and magnesium. It is well charged with gas and is most pleasant to the palate. The still water is sold in glass-stoppered bottles and the sparkling in crown-corked bottles.

## PYOTROPIN.

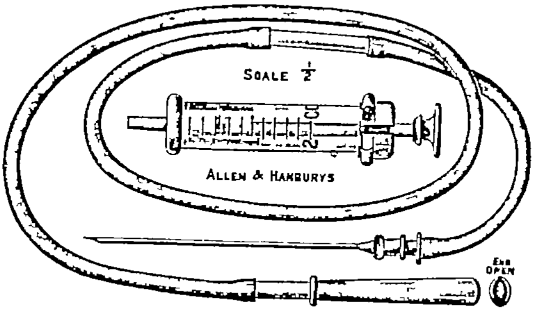
(THOMAS CHRISTY AND CO., 4–12, OLD SWAN LANE, UPPER THAMES STREET, E.C. 4.)

Satisfactory results are claimed for this preparation in cases of lupus, and from Germany in particular a good many clinical records are forthcoming warranting its further trial. The preparation had its origin in Hamburg and has been submitted to us in two forms—namely, a fluid for external use and an ointment. The fluid is a dilution of calcium carbonate with a watery solution of potassium phenolate and a little free carbolic acid. A published analysis of the ointment attributes to it equal parts of salicylic acid and sodium salicylate with sugar, glycerine, and spermaceti. The original idea of the inventor, who was not a medical man, was to remove the marks of tattooing, and the method of treatment being sometimes painful the use of a local anæsthetic is desirable The diseased area is painted with the fluid and covered with a linen rag bearing a thin layer of the ointment, the whole dressing being enclosed in an air-tight plaster bandage. In successful cases there is no suppuration, a dried scab forming and boric acid ointment completing the cure. We understand that Messrs. Christy and Co. will send samples of pyotropin to dermatological departments of hospitals.

# New Inventions.

## A SIMPLE OUTFIT FOR PARACENTESIS THORACIS.

THE simple outfit represented in the accompanying figure has been made after the model of an improvisation used with great success at the French Hospital, London, and in private practice during the last year or two. It should be considered as a portable outfit, made up of a Record syringe with assorted needles that may be used for exploratory puncture of the chest, and provided with an indiarubber tube and teat valve so mounted that evacuation, if judged necessary, can be immediately performed without withdrawing the needle and making another puncture with a trocar fitted to a complicated aspirator. The method is simple. The puncture being made in the usual way, if fluid is found and evacuation is thought advisable, the mounted end of the tube replaces the syringe. The tube is allowed to hang vertically downwards over a basin or jar, and the fluid within the pleural cavity passes slowly and steadily along and drips through the teat valve which at once collapses if, as a result of cough, there is any attempt at back suction. The advantages of the present outfit seem to lie (1) in the simple and effective teat valve, brought to my notice by my late house physician, Dr. Didier, of Mentone; and (2) the standardisation of the tightly fitting mounts with the Record syringe and needles supplied. It is, of course, an easy matter to puncture the chest with the tube already attached (in place of the syringe) to the Record needle, but in such case there must be uncertainty whether or not fluid is present.

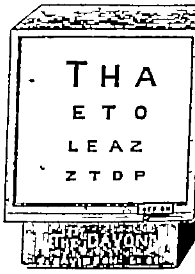


Messrs. Allen and Hanburys, of Wigmore-street, W., are the makers.

F. G. CROOKSHANK, M.D. Lond., F.R.C.P. Lond.

## A PORTABLE VISION-TEST CABINET.

SCHOOL oculists who have to practise in places ill-adapted for their special work often experience great difficulty, especially during the winter months, owing to defective lighting arrangements. The illustration shows an inexpensive portable test cabinet by which this difficulty can be overcome. The cabinet measures 6 in. × 6 in. × 1¾ in., the front being an opal tablet which is illuminated from the back. There are four lines of letters. The illumination is by means of a headlamp and the "Davon" Battery, on which the frame rests and to which it is directly connected. A "make-and-break" contact is provided. The price is £1 15*s.*, or without battery £1 7*s.* 6*d.*



The manufacturers are Messrs. F. Davidson and Co., 29, Great Portland-street, London, W. 1.

W. R. DUNSTAN, M.B. Lond.,
Deputy School Medical Officer, East Sussex County Council.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 13, 1926.

## THE PAYING PATIENT.

It would seem clear that the admission of private patients to the wards, general or special, in our large hospitals is now only a question of time, for when a common expression of public opinion becomes evident its demands cannot be neglected indefinitely. And there is no more doubt of the direction of the public mind. The reasons for this desire for an extension of the in-patient service of the hospitals are two-fold; they are quite obvious and have been set out frequently before. On the one hand, there is a widespread dissatisfaction with the cost of the private nursing homes in relation to the services which they give; and on the other hand, it is becoming more generally recognised that it is only the large modern hospital that can offer the full degree of technical efficiency necessary for the treatment of certain more serious and obscure types of disease. These are the gist of the views expressed in letters published recently in the *Times* and elsewhere, while criticism of nursing homes, a phase of which was dealt with by a correspondent in our columns recently, has been frequent in numerous journals for a long period. It is right to point out that some of that criticism has been unduly harsh. High charges may be high in respect of work done, and yet not high in respect of the cost of that work. The undertakings may be uneconomical, but that is not the same as being grasping. The private nursing homes are often much handicapped by capital charges, and it would be quite wrong to believe that large fortunes are made by their conduct. They may be often the property of one or perhaps two highly skilled and experienced nursing sisters, who have a hard task to contend with difficulties of domestic service, commissariat, and the constant repairs needed by an old and imperfect house, in addition to their essential duties in caring for the sick residents. A study of the budget of such nursing homes would show more frequently than is believed that it would not be possible to reduce charges and make any profit at all, if the endeavour is maintained to render good service. While prices and conditions stay at their present figures nursing homes will remain expensive.

But if nursing homes give much in some cases, and in others cannot afford to give more, it would be idle to defend or ignore the shortcomings of many of these institutions. They cannot replace the amenities of a well-run hospital with its purposive architecture and its special departments and laboratories, and—sometimes a most important point—its resident medical officers capable of dealing with an emergency. The demand for paying wards attached to general hospitals where laboratories and resident doctors are available in convenient buildings is not surprising; it is the logical issue of the developments of medicine running concurrently with altered domestic amenities. That more and more general hospitals in London are considering the provision of such wards and private rooms is well known to the majority of our readers, and the movement is spreading to the provincial towns. It may be added that the rebuilding of many suburban hospitals has recently added materially to the paying beds available in the districts outlying London proper. Some two years ago[1] we published a précis of the accommodation existing for paying patients of moderate means in London; the list then given would have to be extended considerably to give any idea of the facilities available to-day, and it is clear that each year will add to it. We believe that this movement represents a great public benefit, but obviously it is not without its dangers, for it implies certain changes in the conditions both of institutional and private practice that cannot be lightly considered. For reasons which jump to the eyes it is the large and increasing section of the comparatively well-to-do who are left without the best chances of treatment in serious conditions. The devoted attention of their medical advisers enables the majority of them to meet their adversities; it constantly supplies them with a care which could only have its origin in individual knowledge, and for which no institutional treatment will form a substitute. But on the one hand the patients cannot afford the draft upon their resources, and on the other no acute and intimate knowledge of pathological conditions on the part of the practitioner will change an adverse environment or supply costly material. Satisfactory environment and material have been called into existence primarily for the sick poor; how to place them at the disposal of others without encroaching on funds subscribed only for charitable purposes is a problem of great complexity. Admittedly it can only be solved with justice along lines which will ensure that, side by side with the extension of the benefits which the hospitals can offer, there shall be no restriction upon the great functions which called the voluntary hospitals into being and upon which they base their claims to public generosity. Considerable emphasis has been laid on the pecuniary benefit which the general hospitals should derive from this new venture. This is a matter open to doubt. A voluntary hospital, built upon a site which has been bequeathed to it, equipped with costly apparatus through the munificence of the charitable, and staffed by men and women who consent to give their services for negligible salaries, may be able for a relatively small weekly fee to give splendid service to sick persons of the middle classes, while showing on its balance sheet an appreciable annual profit. But it is likely that, if a ward for paying patients is run on such a basis that adequate payments are made for the true rental of the building and the cost of the technical plants and laboratories, the just charge to the paying patients will be far higher than is generally believed, granting the rights of the beneficiaries for whom the charities were founded are to be respected. The protection of these beneficiaries is a problem that has been complicated by a new factor. That the sick poor should, when able, make some contribution to the cost of their upkeep in hospital was a principle difficult to dispute. It is one which has been so famously followed out, individually or upon a group method, that many of our voluntary hospitals, placed among industrial communities, receive large annual incomes in this way. But from the first the danger was seen that the acceptance of that principle might lead to a change in the class of sufferer treated in the wards of our voluntary hospitals. The suggestion has been made openly that the change is arriving, and that the sick poor are less often to be found in our great charitable institutions, their places having been taken by those equally sick but not so poor. Whether this be so or not, its possibility makes every precaution necessary lest the admission of paying patients lead to the catastrophe. The great need here will be the keeping of hospital accounts; and the work now being carried on to ensure that this is done on a uniform plan should be a check on abuse. The large guidance that should be received from accountancy must be remembered if a readjustment of the part played by the voluntary hospitals in communal life is to be equitable.

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[1] THE LANCET, Nov. 3rd and 10th, 1923.

If the outstanding difficulty attendant on the opening of hospitals to paying patients is that of money, there remain other difficulties exceedingly hard to meet. One of these has always been prominently before the eyes of all medical men. The private nursing home leaves its patients with a complete freedom of choice as regards the services of physicians and surgeons; it is the practice for such patients to remain in the care of their own practitoners, who call in consultant advice at such time as may be deemed wise. What is to happen in the private wards of voluntary hospitals? One of the principles of these institutions has been the personal responsibility of the honorary staff to the governors for all that concerns the welfare of the patients. Is the paying patient to be denied tne services of his family medical adviser, who knows all about his circumstances and his case and who out of that knowledge has advised resort to the paying ward? The honorary staff of the hospital may not care to shoulder responsibility for treatment of patients whose history in unknown save after consultation. Further, one of the principal reasons for the establishment of paying wards is the excellence of the technical attention received by the inmates of hospitals, and the paying patient will enter the ward expecting to derive his share of these advantages. The payment of consultation fees can be arranged, though it is a delicate matter, but, if the appropriate medical duties are furnished by house officers, arrangement for adequate remuneration of their services arises and does not seem to have received the contemplation that it should. We set out points which have been made in these columns and elsewhere on many occasions in order to focus attention on the things that matter. In the changes that are taking place throughout society the position of hospitals, the needs of tne public, and the interests of the medical profession are changing; all should be prepared to adapt themselves to new conditions with a wish tnat any benefits to be secured shall be shared by others. The general position is one of flux, and at best the amalgamation of paying with gratuitous patients will be for a time an experiment. If such a system cannot be perfected, hospitals founded for the use of paying patients will arrive to meet the avowed necessities; in the meantime existing situations have to be met. Modern medicine and surgery are steadily being made available to every class of the community, but the prime reason for the existence of the voluntary hospitals must not be lost sight of nor the valuable relations between the public and their medical advisers be weakened. In the meantime the need for the improvement of many nursing homes seems proven.

## INSANITY—LEGAL AND MEDICAL.

LECTURING last month at University College, London, on Insanity—Legal and Medical, Sir THEODORE PIGGOTT (who lately retired from the Bench of the Allahabad High Court) discussed inter alia the topic of irresistible impulse as a defence to a criminal charge. He explained that two recent decisions of the Court of Criminal Appeal had made it clear that this defence is not accepted by the English courts, though it is widely recognised outside this country, was countenanced by Sir JAMES STEPHEN in his accurate and lucid statements of our criminal law, and was favourably considered by an expert committee two years ago. It will be remembered that Lord Justice Atkin's committee, appointed by Lord BIRKENHEAD in July, 1922, dealt fully with this amongst other matters relating to the criminal responsibility of the insane, and made a specific recommendation that the law should be altered. The British Medical Association had proposed that a person should be held to be irresponsible if prevented by mental disease from controlling his own conduct, unless the absence of control were the direct and immediate consequence of his own default. That was what we may call the medical view of this particular aspect of insanity. The Atkin committee, which consisted exclusively of representatives of the law and the Home Office, agreed that cases of mental disorder do occur where the impulse to do a criminal act comes on again and again with increasing force until it is in fact uncontrollable. These cases, the committee observed, are not within the formula known to law as the rules in McNaghten's case. They added: "We think it should be made clear that the law does recognise irresponsibility on the ground of insanity where the act was committed under an impulse which the prisoner was, by mental disease, in substance deprived of any power to resist." They seemed a little uncertain whether the law in this respect could be changed by judicial decision or whether legislation would be required. As it seems evident that the judges are not going to move in the matter, we should like to know when legislation is going to be introduced. The Criminal Justice Bill, which received the Royal Assent last December, made many changes not only in matters of procedure, but also in matters of principle It was an excellent and unusual opportunity for amending the law in accordance with the committee's recommendation The chance might also have been seized to carry out another similar recommendation of a minor and quite uncontroversial nature—namely, to abolish the ludicrous and illogical verdict of "Guilty but insane." But the chance was missed. The Criminal Justice Act contains not a word about insanity. These omissions are the more regrettable since it is notorious that there is a great gulf between legal and medical ideas of insanity, and that the administration of justice is impeded thereby. The recommendations of the Atkin committee would not have bridged the gulf completely, but they represented an important modification of the legal, out of deference to the medical, view.

The best possible illustration of the divergence of legal and medical opinions upon insanity is furnished by the case of RONALD TRUE, recently republished with an admirable introduction and valuable appendices in the series of "Notable British Trials."[1] The issues in the case were clear-cut; the facts were not really in dispute; the legal doctrines—thanks to the interest taken by Mr. Justice McCARDIE in analytical jurisprudence—were fully examined. The medical opinion of TRUE'S state of mind was unanimous. He had been examined in Brixton prison by Dr. W. N. EAST and his assistant, Dr. YOUNG. His history was that of a man of unbalanced behaviour from childhood, addicted to morphia, and twice the victim of crashes from an aeroplane. After prolonged observation the two doctors were convinced that his was a case of congenital mental disorder aggravated by the morphia habit, and that TRUE was certifiably insane. Two alienists, Dr. PERCY SMITH and Dr. H. STODDART, examined TRUE separately at the request of his relatives. Their conclusion was almost identical. These opinions did not fit the legal view taken by the prosecution, who thereupon had TRUE examined—we are now told—by yet another alienist, Dr. R. COLE. Dr. COLE said his own examination did not disclose anything which justified him in calling TRUE insane, but he gave his opinion subject to several important reservations. Sir RICHARD MUIR, who prosecuted for the Crown, thus entered upon the trial without the support of a single expert who would say that the accused was a sane and responsible man He relied upon the legal view of insanity, contending that TRUE clearly knew the physical nature of his act in killing GERTRUDE YATES, knew that the act was wrong, and was therefore within the law as laid down for the past 80 years. Sir RICHARD MUIR so ably and tenaciously conducted the case that the jury found the prisoner guilty and their verdict was upheld by the Court of Criminal Appeal. From that point, however, the tide turned in favour of the medical opinion. The medical evidence had been sufficient to put the Home Office upon inquiry This being so, it was the duty of the Home Secretary to have the prisoner examined by two or more doctors in accordance with Section 2 (4) of the Criminal Lunatics Act, 1884. Mr. SHORTT appointed Sir MAURICE CRAIG, Dr. SIDNEY DYER (then medical member of the Prison Commission), and Sir JOHN BAKER (formerly medical superintendent of Broadmoor). They found TRUE to be undoubtedly insane and the execution was, as the common law enjoins, respited. The man who was sane enough to be sentenced to death was not sane enough to be hanged after all.

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[1] Trial of Ronald True. Edited by Donald Carswell, of the Middle Temple, Barrister-at-law. William Hodge and Co., Ltd. 1925. 10s. 6d.

In TRUE'S case not only the jury but a large section of the public took the legal rather than the medical view. When it was announced that he was not to be executed an amazing outcry arose. Only a day or two earlier, as it happened, a youth named HENRY JACOBY had been hanged for the murder of Lady WHITE. The newspapers were full of angry protests. JACOBY, it was said, was a poor working man's son who had killed a rich knight's widow and therefore had to be hanged, while TRUE, a well-connected man who had killed a poor outcast, was reprieved. The courts of law, it was said, had been flouted; trial by jury had been superseded by trial by Harley-street. The Home Secretary was violently attacked, but made an excellent defence in the House of Commons, and eventually the storm subsided. Out of these events came ultimately the appointment, report, and recommendations of Lord Justice ATKIN'S committee. It is because those recommendations did something to reconcile the differences between the legal and medical view of insanity—differences so unfortunately emphasised in the case of RONALD TRUE—that we press the question, "When will the recommendations be given statutory effect?"

## THE MENTAL EFFECT OF PHYSICAL DEFORMITY.

THE desire to appear normal, to say nothing of attractive, in the eyes of our fellows bears the marks of an instinctive process. The extent of its development varies both racially and individually, and visible defects may accordingly be invested with an emotional value dependent upon the reaction between two variables—the attitude of the multitude and the sensitiveness of the individual. Not all of us who need it can claim the equanimity of that American statesman who retorted to a commiserating friend by a verse, cast in a popular form, briefly explaining that his lack of beauty concerned himself not at all, but jarred only the beholder, and even such equanimity would fail if the defect were of a kind to excite strong aversion. It is in recognition of this fact that facial wounds received in the late war are assessed for pension purposes not merely upon the degree of loss of function, but also upon the degree of disfigurement; in legal cases the same consideration has full weight. Though people of similar training and prejudices might reach a general agreement as to the effect upon the beholder of a particular disfigurement, yet this agreement would only indicate the reaction of the herd; the sensitiveness of the sufferer cannot be expressed as an average, and extreme and unexpected variations are actually found. In some cases where a definite organ, as an eye or a nose, has been lost the patient's reaction takes the form of a feeling that the personality has suffered some grievous loss; the patient, if given the opportunity to express himself freely, complains neither of defect of function nor of actual deformity, but rather of feelings of inferiority in the presence of other people, of a loss of personal values and pleasure in life, plainly attaching to the missing organ a significance out of proportion to its physical importance. It may be assumed that unconscious determinants are at work in producing this mental attitude which, however irrational it may be, provides a strong incentive to cosmetic endeavour.

The sense of inferiority thus induced by the loss of an organ reaches its height when the external genitals are concerned, and Prof. ARTHUR EDMUNDS, in the Hunterian lecture reported in this issue, describes an operation for hypospadias which finds part of its justification in the mental reactions caused by the deformity, though there are, indeed, straightforward physical reasons for the effort to relieve this congenital defect. These Mr. EDMUNDS indicates, referring also to the social reasons that strengthen the call for operative interference, and one must admit cause for the fears that led the parents of one child to hide the knowledge of his deformity, though their policy of seclusion might itself have exaggerated other mental results. The genital organs carry such an emotional charge that, even though they remain concealed in ordinary circumstances, the reactions of the individual to any loss or defect are often greater than when he bears a loss literally upon his face. There come into play not only the unfortunate attitude of the herd to the individual, but the reaction of the individual to the awareness of his own misfortune. Moreover, in the case of children we must bear in mind that mental development in the psycho-sexual sphere is so powerful in determining the whole behaviour of the individual that, apart from endocrine influence, the physical state of the genitalia as they appear to the person concerned must play a part, though its extent may be debatable, in fashioning his reaction modes and character traits. It is known that vulgar nursery threats of mutilation have formed the nucleus of unconscious motivations in the direction of fear or hatred. It is not unduly speculative to apply these considerations to the subjects of hypospadias; for, when the mere threat of loss of the penis can produce pathological results through unconscious mental processes, we should expect that, even if a happy fate shielded the sufferer from unkind comment, an actual defect would contain disastrous possibilities in regard to mental development.

These a priori views can only be tentative, for there seems to have been no systematic study of the mental states of the subjects of extreme degrees of hypospadias. There can be no doubt, however, concerning the relief from social disadvantages that a successful operation can bring, and the consequent saving of physiological distress is undeniable. Whether deeper feelings of deprivation can be prevented or abolished, and whether the liability to perversion mentioned by Mr. EDMUNDS can be obviated, are questions that can only be solved by psychological investigation. There remains the question of marriage, and though in mild cases operation may render satisfactory the full sexual function, yet in the cases described as pseudohermaphroditism the results must fall so far short of the normal that the risk of unhappiness would render marriage an experiment not to be lightly attempted. But a patient who has reached adult life, surgery having done its best for him, may be presumed to have acquired sufficient knowledge to face his own difficulties.

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## A COMMITTEE ON VACCINATION.

AT the International Conference on Small-pox recently held under the auspices of the Health Committee of the League of Nations (see THE LANCET, Jan. 30th, p. 243) certain conclusions were arrived at as to the methods of investigation to be adopted. These included inquiry into the essential matters over which Government control of vaccine lymph should be uniformly exercised and into the relative value of various tests devised for the estimation of its potency, and study of the affections of the central nervous system which have been reported to have followed vaccination in some countries. No time has been lost by Mr. Neville Chamberlain in responding to the suggestion made at the conference that various Governments should collect and study relevant information. It is announced that the Minister of Health, in conjunction with the Medical Research Council, has appointed a committee to inquire and report from time to time: (1) on matters relating to the preparation, testing, and standardisation of vaccine lymph; (2) on the practical methods which are available in the light of modern knowledge to diminish or remove any risks which may result from vaccination; (3) on the methods of vaccination which are most appropriate to give protection against risk of small-pox infection in epidemic and non-epidemic periods. The committee will also be charged with the duty of coördinating the work of investigation on these questions in this country and abroad, having regard to corresponding work undertaken by international health organisations. The committee consists of Sir Humphry Rolleston (chairman), Dr. F. R. Blaxall, Dr. G. F. Buchan, Dr. A. E. Cope, Dr. Mervyn H. Gordon, F.R.S., Prof. J. C. G. Ledingham, F.R.S., and Dr. J. R. Perdrau. Its secretary is Dr. J. R. Hutchinson, a medical officer of the Ministry of Health, Whitehall, S.W. 1, to whom all communications relating to the work of the committee should be addressed.

# Annotations.

"Ne quid nimis."

## MALARIA TREATMENT OF CEREBRAL SYPHILIS.

THE history of the attempts to treat such an intractable disease as established cerebral syphilis makes sorry reading. Prof. Warrington Yorke, who discussed the Malaria Treatment of General Paralysis of the Insane at a meeting of the Liverpool Medical Institution held on Feb. 4th, dismissed modern specific antisyphilitic treatment, including intrathecal medication, as little more effective than the older treatment with mercury ointment against neuro-syphilis. He had some hope, however, that tryparsamide might prove to be as effective in syphilis as it has been in sleeping sickness. With regard to non-specific treatment, he recalled the fact that Hippocrates and Galen knew that fevers influenced psychoses, as also did Boerhaave and Sydenham. As long ago as the middle of the nineteenth century attempts had been made to produce changes in cases of G.P.I. by the induction of abscess formation and similar processes. Later there followed in succession treatment by the injection of non-bacterial substances, such as milk, then the use of vaccines, and ultimately in 1917 the injection of living micro-organisms. In 1920 Wagner-Jauregg, in Vienna, published the results of the treatment of a series of cases infected with malaria. The technique was comparatively simple, the blood from a malarial individual being introduced into the patient either intravenously, intramuscularly, or by scarification. The investigation of 400 cases treated in Vienna during the years 1917 to 1922 showed the following results: complete remission 33 per cent. and partial remission 14 per cent. In a series of 299 cases treated in 1922 in five large British mental hospitals, 70 patients had improved to such an extent that they could be discharged from hospital. In a series of cases in the pre-asylum stage complete remissions were obtained in over 30 per cent. The latter group obviously contain a larger proportion of cases in the early stage of the disease. It is unfortunate that in many cases the condition is only arrested and the victims still remain useless members of society. At the same time many such cases become cleaner in their habits and consequently easier to nurse. It is impossible yet to forecast the ultimate result of malarial treatment, except that greater success can be hoped for in early cases. In some patients the improvement is immediate and dramatic, whereas in others it is slow and may go on for months. As regards the effect of the treatment on the serum and cerebro-spinal fluid reactions, these may become normal, but in many cases are not parallel to the clinical changes; clinical improvement may be complete and the pathological reactions remain unchanged for a considerable period and only after many months gradually move in the normal direction. Several pathologists have had the opportunity of examining the brains of remitted cases who have died from intercurrent disease; some of them showed no changes recognisable post mortem as those of G.P.I. The treatment requires some judgment and considerable experience; especially difficult is the decision as to when the attacks should be stopped. If they are stopped too soon, no benefit ensues; if they are allowed to go on too long, the patient may die. There are no means of modifying the severity of the attack; the premature administration of quinine completely spoils the results and also prevents reinfection for a period of many months. Prof. Yorke advises 8 to 12 malarial attacks as the optimum number in the majority of cases. He spoke also of the interesting opportunity that treatment of these cases had given of studying closely the phenomena of malaria. He pointed out that in these induced cases very few doses of quinine sufficed apparently to cure the patients, in contrast with the difficulty of producing this result in ordinary tropical practice.

It had been possible to establish definitely the existence of three species of malaria parasites, the parasites of each species always breeding true. In the induced cases relapse was comparatively rare, and when it did occur was long delayed. The ineffectiveness of quinine to cure the war cases and patients in tropical practice was due to the fact that they were not primary infections. The factor which governed relapse was the patient's individuality; the occurrence of relapses was in no way related to the strains of parasites with which the patients were infected, or to the drugs used, their dosage and their method of administration. He advanced a hypothesis of the process by which quinine indirectly destroys the parasites, and concluded by pointing out not only the uselessness but the actual danger of either too large doses or of too long prolonged administration of quinine.

## THE FACTORY CODE.

MODERN industrial methods were born in this country and so was factory legislation. As a nation we may hesitate to-day between some legitimate pride over a legal code which has been taken as a model to be imitated throughout the world, often even imitated slavishly to the letter when the circumstances demanding some enactment do not exist, and deep-seated shame over the conditions of human life which stimulated the national conscience to embark upon this uncharted sea. The whole story of this voyage of adventure during last century, of how out of the eater came forth meat, is not retold in a book by Mr. H. A. Mess, entitled "Factory Legislation and its Prevention, 1891–1924,"[1] which lies before us; the thread of the narrative is only taken up where others have left it at the end of last century and brought up to date. The year chosen for the start is 1891, when power to control dangerous trades by special rules first became statutory, a power upon which remarkable codes, revolutionising health conditions in many industries, have been built; this period witnessed a great trade union revival, the return of the first Labour Member to Parliament, and the first International Labour Conference. Henceforth, legislation up to the war period was directed at particular objectives rather than at such sweeping reforms as limitation of hours of labour, a matter upon which statute to-day lags far behind practice; the lead industries are controlled, phosphorus poisoning is abolished, anthrax is tackled, dust inhalation is studied, humidity in cotton mills is investigated. At each stage the tendency becomes more and more pronounced to proceed after inquiry based on scientific evidence, rather than in answer to nebulous popular demand Two reforms can be quoted. The first is that children have disappeared from factories; the second, which has crept in insidiously, is that adult males, previously omitted from all protective legislation, were brought within the scope of special regulations. The war period marked a new era of which the maintenance of health is the guiding star, rather than the prevention of disease; the Health of Munition Workers' Committee strove to increase output to meet national emergency and based its advice on the results of scientific investigation. Power to make welfare orders was taken and has been widely used; the safety-first movement followed. And we are brought up to date with a vast amount of complicated and piecemeal legislation waiting to be amalgamated into a consolidating Act—now long overdue. Mr. Mess describes international action in the period under review, and the coming into being of the International Labour Office; the way law is enforced and new ideas spread by the staff of factory inspectors; the creation of Whitley councils; and other kindred legislation, concerned with such things as compensation, wages, national health insurance, education, and housing. Further extension of factory legislation is held to be inevitable as scientific technique alters, and as, through research, more accurate knowledge is obtained of the human factor in industry and of its reactions to hours of labour and to such environmental influences as light, temperature, and ventilation. Such extension and research must call more and more for skilled medical work. Altogether the book, which contains a useful bibliography and is well indexed, is a careful and accurate résumé, clearly written and informative. It must be invaluable to anyone interested in that great branch of public health legislation—the factory code

## CLIMATIC BUBO.

So many cases of climatic bubo have been seen in the Hamburg Hospital for Seamen during 1924 and 1925 that Marinestabsarzt (Surgeon Lieut.-Commander) Reinhard Günther was led to discuss them in the *Archiv für Schiffs- und Tropen-Hygiene* for October, 1925 (p. 510). He says this bubo has been described over and over again, ascribed in turn to malaria, dysentery, plague, trematode infection, and rheumatic fever, but is now considered in itself a distinct disease and due to infection; and while the infecting agent and the point of entry remain unknown, he suggests a probable venereal origin. Climatic bubo occurs in all tropical and subtropical regions, but also in people who have never left Europe. It attacks the glands in the groin almost exclusively, particularly the deeper glands, and, histologically, it differs from inflammations due to pus-forming cocci, for the gland capsule is thickened, the reticulum is cirrhosed, and the cells within the meshes degenerate. There is no general suppuration of the gland; bacteriologically the pus is sterile to culture and to microscopic examination (whether direct or dark ground), and inoculations of all kinds into apes, guinea-pigs, and rabbits have been negative. Six cases in all were admitted to the Hamburg Hospital for Seamen in 1921–2–3, but in 1924, 15, and 14 in the first eight months of 1925. Of the total of 35 cases, nine came from Java, six from East Asia, six from Africa, and five from South America; 15 were left-sided, 9 right, and 11 double. The ages of the patients fell between 18 and 41, usually in the twenties. Out of 30, three were officers, 16 came from the engine-room staffs, and there were 11 others. The general condition of the patients was good; they had slight pyrexia, pulse varying with the temperature, and there was no swelling of liver or spleen. The glands might be the size of a walnut or of the fist; they enlarged slowly, the deep glands enlarging first. In two-thirds of the cases the pelvic glands also enlarged, in one case so much that disease of the pelvic bones was feared. Periadenitis was rare, lymphangitis was always absent, abscess formation was focal, not massive, and the foci rarely coalesced. If the small abscesses burst through the skin the openings remained separated, with normal skin between. The course of the disease was slow and the inclination to recovery slight, but the period under treatment is not recorded. No venereal lesion to account for these buboes was ever found, but two patients had scars of old hard sores, two had positive Wassermann reactions. Iodine by the mouth and warmth or ice locally, with rest in bed, cured three early cases, and three more recovered after puncture-incisions; two cases got well after X ray treatment, incisions were needed for 23, and excision secured good results in four cases.

Two papers on this disease appeared in 1925 in the *Annali di Medicina Navale* from the pen of Captain (Surgeon) Dr. F. Virgillo, one in January (p. 1), the second in May (p 268); in these it is called "subacute lymphogranuloma of the groin." In the January number the literature of the disease is discussed at length, and it is stated that this swelling arises rapidly, that it usually suppurates and forms sinuses, and that it always ends in a satisfactory cure. It is held identical with the "climatic bubo" of many authors, and while its ætiology is not determined the probable origin is held to be venereal. Clinical reports of seven cases are given, all in males of 21 years of age; one was ascribed to strain, one was associated with gonorrhœa, four patients had small preputial abrasions of which they declared themselves unaware, and one had a small ulcer on the leg. There was no characteristic blood picture, this according with Dr. Günther's observations. Three patients gave a negative Wassermann and a negative cutaneous reaction for tubercle. The pus was sterile and attempts at inoculation all failed. Some of these buboes became reduced under ice-bags, some with iodine injections; excision was useful. Treatment lasted from 35 to 110 days. The glands when removed had a thickened capsule, the reticular strands, too, were thickened, the cells on them proliferating; the gland cells were thus compressed and coagulation necrosis was occurring—two large microphotographs illustrate these changes.

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[1] London: P. S. King and Son, Ltd. 1926. Pp. 225. 12s. 6d.

## FLY PREVENTION IN THE TROPICS.

ON the West Coast of Africa, with its torrential rains, night-soil disposal is limited to earth disposal in deep pits, since incineration and water carriage are impossible, as is also shallow trenching. In these pits flies develop in their tens of thousands, and tend to escape in large numbers when the pits are opened to make fresh deposits. In the January number of the *Journal of the Royal Army Medical Corps* Major A. L. Otway describes a method whereby the flies were reduced to a negligible quantity. He found that flies, newly developed in the dark, make directly for the nearest point of light. He therefore kept the pit completely dark, admitting light at one point only, far from the filling orifice. He fitted a fly-trap over the point of light, and caught the flies there. The pits are about 20 ft. long, 12 ft. deep, and 4 ft. wide, roofed over with bush timber, palm leaves, and beaten earth tarred or treated with heavy oil, to shut out the light. A filling orifice is made of a sanitary dustbin without a bottom, but with a well-fitting lid, over which is a loose tarred canvas cover through which the handle projects. The fly-trap is an 8-gallon petrol tin case, about 20 in. by 10 in. by 14 in.; its top is replaced by copper gauze, and similarly protected windows are made in the sides, while a 6 in. circular hole in the bottom gives access to a gauze cone, 5 in. high and 3 in. across the top. The whole is set on an opening in the roof of the pit. Over the pit, 2 ft. away from it all round, is a thatched weather protection—light over the trap, dark over the supply opening. The first trap set up became almost immediately filled with flies; many of these were dead five hours later. If they have no way of escape to find food they die, at any rate they do not breed. An immense number of flies, estimated at 250,000, have often been caught in a week. The trap can easily be changed at night, and if it is placed far from the filling orifice, and that is kept dark, few escape. There is no offensive odour, so that the pit need not be kept a long way from dwellings. The number of flies in the area is said to have become negligible since this method of attack has been instituted. But success evidently depends largely on minute exactitude in carrying out the details of the procedure recommended, and medical officers in the tropics who wish to give the method a trial would be well advised to consult Major Otway's article.

## RETROPERITONEAL CYSTS.

ACCORDING to Dr. Henry W. Cave,[1] of New York, who records an illustrative case, retroperitoneal cysts, though of infrequent surgical occurrence, are of considerable importance from the embryologico-anatomical standpoint. Most of the cases have been recorded in foreign literature. It is generally agreed that the cysts spring from some portion of the developing urogenital tract, or from some variation in the developing retroperitoneal lymphatic system. The growths, which may be single or multiple, have been classified as follows: (1) the single unilocular cyst; (2) the single cyst with smaller daughter cysts arising from its wall or cysts in the large cyst cavity; (3) a mass of cysts of approximately the same size without any connexion between them; and (4) multiple cyst adenomata. The wall is composed of fibrous tissue and the lining membrane may be loose or close connective tissue without epithelium. The contents are lymph, blood, jelly-like pseudomucin, or colloid; hair, teeth, or grumous material; parasitic elements; or a combination of two or more of the above. The most frequent symptom is either a localised or a general increase in the size of the abdomen, or occasionally localised pain or pain referable to pressure on the dorsal nerves. Sometimes, but rarely, there are œdema and varicosities of the lower extremities. Bladder symptoms may arise owing to pressure as the tumour enlarges in an upward direction; pressure on the bile-duct may give rise to jaundice; or disturbance of respiration may develop. There may be loss of weight and cachexia, especially if the cyst be malignant. A retroperitoneal cyst is rarely diagnosed before operation, being usually mistaken for one of the following conditions: ovarian cyst, hydronephrosis, renal tumour, or tuberculous peritonitis. In most of the cases the correct diagnosis is made in the course of an exploratory operation. The prognosis is good, recurrence being exceptional. The treatment does not involve any complicated procedures, enucleation or marsupialisation in one or two stages being all that is required. Dr. Cave's case occurred in a boy, aged 3 years, in whom the symptoms were a definite increase in the size and prominence of the abdomen, especially on the right side, and loss of appetite. A pre-operative diagnosis of tuberculous peritonitis was made. On laparotomy a huge retroperitoneal cyst was found pushing the cæcum, appendix, and transverse colon up under the liver. As the patient's condition did not allow much manipulation, it was decided not to remove the entire cyst but to evacuate the contents and establish drainage. About 850 c.cm. of dark red fluid were drawn off from the cyst, within which two daughter cysts were found, from each of which another 150–175 c.cm. were removed. After a stormy convalescence complete recovery took place.

## PUBLIC HEALTH IN JUGO-SLAVIA.

Dr. Alfred Greenwood has given the Kent County Council a very interesting report of a visit to the kingdom of the Serbs, Croats, and Slovenes, which he paid last summer under an arrangement made by the League of Nations and the Rockefeller Foundation, for the international exchange of public health officers. In the sixth of a series of articles on the machinery of public health administration abroad[1] we recently gave an account of the medical organisation of Jugo-Slavia from which it was clear that the health services of that country are in many ways rudimentary. This is certainly true; but what fills Dr. Greenwood with amazement is the remarkable progress of the last few years—progress which he thinks is unparalleled in the public health history of the world. The health department was only set up six years ago, and it is probable that its rapid development has been made easier rather than otherwise by the fact that old Serbia had no traditions in hygiene. During the war that country lost a million men, and the shortage of doctors became acute. In Jugo-Slavia there are now, however, 3000 doctors to serve a population of 12 million, and, thanks to the foresight and enthusiasm of the chief medical officer, Dr. Stampar, there are 150 whole-time specialists in public health as well as 300 part-time officers, and the number is steadily increasing. It is astonishing to read of the school clinics, tuberculosis dispensaries, venereal clinics, malaria stations, research and bacteriological institutes, maternity and child welfare centres, treatment centres for trachoma, and the hundred-and-one other results of a few years' endeavour. There is active welfare work in the schools (where there are some 850,000 pupils), and Dr. Greenwood says that "the treatment of defects found amongst elementary and secondary school-children in Belgrade seems in advance of our own arrangements." In the country districts there are mobile units for dealing with epidemics, and a determined effort is being made to stamp out malaria. A laboratory for research in tropical diseases was established at Belgrade in 1922, and the lowlands by the river have been carefully studied with a view to fighting mosquitoes. Chlorine gas is giving successful results. An institute of social medicine in Belgrade includes amongst its activities biometry, the study of hygiene in its application to the needs of different parts of Jugo-Slavia, and the dissemination of information to the public. Propaganda is thriving, and throughout the country there is a wave of interest in health which had led to the erection of institutes and laboratories everywhere. The housing conditions, however, especially in Southern Macedonia, are often deplorable, and Dr. Greenwood considers that more nurses and health visitors are needed. No one knows how long the public enthusiasm will last, but what has already been done sounds almost miraculous to anyone familiar with the state of the Balkans before the war, and Dr. Greenwood's report deserves wide circulation

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[1] Surgery, Gynecology, and Obstetrics, November, 1925.

[1] THE LANCET, 1925, ii., 772.

## ELECTROLYTIC DISINFECTANT FLUID.

When Faraday in 1833 wrote "On Using Solutions of Chlorides in Water—for instance, the Chlorides of Sodium or Calcium, there was evolution of chlorine only at the positive electrode, and of hydrogen, with the oxide of the base as soda or lime, at the negative electrode," he probably no more expected that about 70 years later a medical officer would propose to his authority to utilise this discovery for the manufacture of disinfectants than he did that the last section "On the absolute quantity of electricity associated with the particles or atoms of matter" of the same paper would lead to the actual determination of this quantity and of the mass of the atom itself. Dr. F. W. Alexander, in a special report on "Twenty Years Working of the Electrolytic Disinfectant Plant of Poplar," describes in untechnical language his work on the production of a stable disinfectant by electrolysing a mixture of chlorides of sodium and magnesium. He frankly states that he is not a chemist nor an electrician, and there is no difficulty in accepting this statement. He is evidently a painstaking experimenter who, in the midst of many other duties, has worked out a practical means of carrying out an idea and has exploited his product with all the ardour of the pioneer. The use of chlorine obtained by electrolysis as a disinfectant, as Dr. Alexander shows, is not new. The merit of his preparation is that he seems to have produced a hypochlorite solution relatively free from chlorate and rendered stable by a slight excess of base, the presence of magnesium salts in the solution preventing so large an excess as would render the liquid inactive. Actually Dr. Alexander has used magnesium hydroxide as a stabilising base but, as he points out, soda should be equally efficacious. An interesting part of the report deals with the very difficult question of swimming baths. Dr. Alexander describes very fully the many unpleasant ways in which these otherwise excellent institutions become contaminated and may thereby spread infection. Anyone who has visited the outdoor and indoor swimming baths in and around London must feel that they are sources of pleasure and, in the main, of health to hundreds of thousands, and yet that the risks of bathing in the highly concentrated extract of human surfaces are not altogether to be ignored. The remedy is not clear. Dr. Alexander advocates the use of his own hypochlorite disinfectant and, where it can be afforded, filtration. Open-air baths are favourably situated for the action of air and light on the water and on the skins of bathers. The water of these baths is usually well aerated owing to the rapid growth in the bathing season of green organisms. These minute plants abstract the $CO_2$ from the bicarbonate in the water, retaining the carbon as body substance while the freed oxygen goes into solution. The calcium carbonate falls to the bottom as mud and the water becomes softer and more alkaline. The larvæ of midges are usually plentiful, and frequently water-beetles, and particularly the water boatman, forced to escape by flight from drying up ponds, thrive in such baths. The use of disinfectants stops all this but does not clean the water. Filtration removes suspended matters and gives an extremely clear, bright liquid. It does not sterilise the water. Disinfection and filtration yield a clear and sterile liquid, but it is difficult to feel that this is as good as fresh water, which is costly. The continued use of such a "cleaned-up" liquid must lead to great concentration of organic matter which, although sterilised, is not oxidised.

Twenty years ago The Lancet supported Dr. Alexander in introducing his electrolytic disinfectant. His latest report, which he hints is a swan song, is an earnest contribution to the solution of a complicated question, which nevertheless does not appear to be finally solved

## "THE BULLETIN OF HYGIENE."

It is estimated that about 25,000 scientific journals are now in circulation. To keep in touch with more than a few of them is beyond the powers of an ordinary man, and it is only justifiable to add to the number if the addition is designed to collate important information from many. This is a real service. It may confidently be expected that the *Bulletin of Hygiene*, issued by the London Bureau of Hygiene and Tropical Diseases (of which the first number has just appeared), will fulfil its promise and become recognised as one of those journals which have a useful function. The *Bulletin* resembles the *Medical Science Abstracts and Reviews*, which used to be published by the Medical Research Council, in that it is a collection of précis of papers published elsewhere. Its scope, however, is nothing like so wide. It deals primarily with hygiene rather than general medicine, and apart from the section on tropical diseases it is mainly restricted to publications written in English, though suitable papers and reprints in any language, if sent to the Bureau, will be noticed as far as possible. This limited field makes it possible to give more expansive notice to each paper than was possible in *Abstracts and Reviews*, and the resulting journal is rather more readable though less comprehensive and ambitious. It is to take the place of the old Sanitation Supplements, now discontinued. A representative list of contributors and commentators is given at the beginning and we forecast success for the new literary adventure. We hope that it will be an editorial policy to take more notice of foreign publications

## AN EIGHTEENTH CENTURY ESSAY ON GOUT.

William Cadogan was an eighteenth century physician who, like his mediæval predecessors and certain of his contemporaries and successors, such as William Kitchiner, John Paris, and Thomas King-Chambers, did not disdain to discuss the problems of diet, the iniquity of quackery, and the folly of polypharmacy. Though prominent during his life he has suffered "the iniquity of oblivion," and there are few to-day who could say much about him. From this neglect he has been rescued by Dr. Ruhräh, who in a charming little book[1] has republished the essay on Gout, and a friendly satirical poem or poetical version thereof by a Mrs. Ireland, together with an informing introduction giving details of Cadogan's life and work. He was born in 1711, entered at Oriel College, taking his B.A. in 1731, studied medicine on the Continent, and took his doctor's degree at Leyden in 1737. Returning to England he served for a short time in the army and then settled in Bristol, where he was living in 1752, when made a Fellow of the Royal Society. In 1754 we find him in London as physician to the Foundling Hospital. In 1755 he took the three degrees of M.A., B.M., and D.M. at Oxford, and in 1758 was elected to the College of Physicians, of which body he was four times censor and upon two occasions Harveian orator. He lived in George-street, Hanover-square. He wrote an essay upon Nursing and the Management of Children, as well as the better known essay on Gout. This essay on Gout, which was originally published at 1*s.* 6*d.*, is written in the scholarly and dignified English of the period and had a great vogue. It was evidently widely read and was the subject of much discussion, giving rise also to satirical "Enquiries" and the amusing poem by Mrs. Ireland referred to above. The book, first published in 1772, is a reasoned argument upon the uselessness of drugs for the cure of gout and upon the necessity of leading a rational life free from indolence, intemperance, or vexation, which calls to mind the lines in the "Regimen Salernitanum"—

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[1] William Cadogan: His Essay on Gout. By John Ruhräh, M.D. New York: Paul B. Hoeber. 1925. Pp 114. $1.50.

> "Medici tibi fiant
> Haec tria, mens hilaris, requies, moderata diaeta."

Cadogan's remarks upon diet are sound enough, and his diatribes against quackery even more applicable to-day than when they were written. He was in advance of his times in his strong recommendation of massage (p. 90) and gentle exercise, the latter to be gradually increased. Dr. Ruhrah and his publisher are to be congratulated upon having given to the profession so charming a reprint of an excellent essay.

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In view of the large number of inquiries received, the Ministry of Health desire to make it clear that persons engaged in excepted employment—e.g., railway clerks and certain local government employees earning not more than £250 a year—may be qualified to become voluntary contributors under the combined scheme of health insurance and Widows', Orphans', and Old Age Pensions, if they have been insured under the National Health Insurance scheme for at least two years at any time since July, 1912, or if they served in His Majesty's Forces for at least two years during the late war. Any such persons who desire to avail themselves of this right should get into touch with an approved society, or if they do not wish to join a society, with the Ministry of Health. As voluntary contributors they would be required to pay the full weekly contribution (normally 1*s.* 6*d.* for a man and 1*s.* 1*d.* for a woman), but where pensions contributions are also paid in respect of their employment, suitable arrangements will be made to refund any contributions paid in duplicate.

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Public Health Course for Nurses.—The public health section of the College of Nursing has organised a course of study and lectures, lasting from April 1st to 15th, to assist nurses of the public health staff in their professional education. The courses held in the two weeks may be taken separately if desired, and, for both or either, grants may be given by the local authorities (under the Maternity and Child Welfare Act with the approval of the Ministry of Health) to cover the expenses of the nurses. The study and coaching week has been arranged during the Easter holidays to make it easier for nurses to attend, and this week starts on April 1st. The post-graduate week lasts from April 8th to 15th. The study week will be under the charge of a tutor and will include classes in anatomy, physiology, and hygiene, and lectures on sanitary law. During the post-graduate week there will be lectures on Poor-law reform, State insurance, cancer research, sunlight treatment, the maternal mortality-rate, diseases of early infancy, encephalitis lethargica, the wife under English law, and the lost heritage of childhood. Amongst the lecturers will be Sir Henry Gauvain, Mrs. Crofts, Sir John Robertson, and Mr. Cecil Chapman, and it is hoped that medical officers of health will assist by permitting as many of their nursing staff to attend as possible. The course will be held at the College of Nursing, Henrietta-street, Cavendish-square, W. 1.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLX.—TREATMENT OF MOVABLE KIDNEY.

The failure to appreciate that any abnormal or pathological condition found on examination is not necessarily responsible for symptoms has led to much loose thinking over the movable kidney. In the asthenic state the patient complains of weakness, of being easily tired, and of vague pains, especially in the abdomen; clinical signs are usually absent. As the most conspicuous feature is a want of nervous tone, the name neurasthenia, which literally means a *weakness of the nerves*, has been applied. Probably no word in medicine has been more misused, for it has come to denote anything from laziness to insanity. Unfortunately this condition is constantly confused with the psychoses and neuroses, which resemble it in so far as no clinical signs are found. In these, however, the symptoms depend not so much on a want of tone in the nervous system as on a perverted activity. Neurasthenia is frequently associated with visceroptosis; on the erroneous supposition that ptosis of the viscera is the cause of asthenia, treatment has been directed to the kidney, which is the most easily palpated of prolapsed organs. Attempts to suture it firmly into its normal position were at one time common practice The fallacy of suturing the kidney or its capsule to the lower ribs, an operation at one time popular, is obvious. During inspiration the ribs ascend and the diaphragm with the underlying viscera descends. When the kidney is sutured to the ribs it moves upwards during inspiration, and, as the liver moves downwards, the kidney is constantly contused. Fortunately for both the patient and the kidney the sutures usually give way. While visceroptosis is apparently on the increase and is responsible for much suffering, suture operations are being more and more rarely performed. To-day the fashion is to assume that because a movable kidney is found in healthy people and permanent improvement rarely followed suturing it in place, it never can give rise to trouble. The symptoms are attributed to auto-suggestion and the patient is sent to the psychologist. While the suffering in the mass is probably less than in the days of the big operation, much unnecessary suffering does still occur.

The normal position of the viscera in the living is difficult to ascertain, since evidence from the post-mortem and dissecting-rooms, from abdominal operations, and from palpation during a clinical examination are, for various reasons, unreliable. The outline of the stomach and intestine and the pelvis of the kidney can, however, be shown up by substances opaque to the X rays such as barium and sodium iodide, and by this means definite information as to the anatomy of the living can be gained. It is found that not only does the position of the viscera vary with the posture adopted, but that in scarcely any two individuals is it the same. When a standard is taken as that to which the majority of people conform, extreme variations may exist with perfect health and no symptoms. We may conclude that an abnormally placed or mobile organ gives rise to symptoms only if its own function is affected or if it interferes with that of some neighbouring organ. It is only when other causes have been excluded, and when disordered function is attributed to the displacement, that treatment should be directed to it. At the same time, it must be remembered that such an organ is heir to all the diseases that may affect the normally placed.

### *Relation of the Movable Kidney to Nervous Disorders.*

When symptoms of neurasthenia are associated with a movable kidney no permanent improvement follows operation. In both neurasthenia and visceroptosis there is a want of muscle tone. It is probable that when they coexist, as so often happens, both are dependent on the same cause. Therefore, little improvement is to be expected from fixing the kidney, apart from that due to the enforced rest in bed, feeding, and suggestion. The constant traction upon the sympathetic system is supposed to lead to a feeling of tiredness at the end of the day and eventually to neurasthenia It is difficult to understand how this could account for the general want of tone. Fortunately, a device such as the Curtis belt, which by supporting the lower part of the abdomen exerts pressure in the direction of the normal pull of the muscles, will relieve any traction from the prolapsed viscera, particularly when combined with a period of rest in bed and a suitable diet. Belts designed to exert pressure upon the lower pole of the kidney below the costal margin are not recommended. Palpation of this region, with the patient standing, shows that considerable pressure would be required to have any action, and would interfere with the function of neighbouring organs such as the colon. Moreover, the pressure from such a belt is opposed to that normally exerted by the upper abdominal muscles.

A patient who accidentally finds a lump in the abdomen, or has been told that a kidney is movable, may attribute symptoms to this cause. Such symptoms bear no definite relationship to disordered function of the kidney There is in these cases not only a want of tone of the nervous system, but also marked instability Experience has shown that operation upon the kidney rarely leads to a cure, for pain is complained of in the scar, or the symptoms that persist are referred to some other organ Operation is definitely contra indicated in these cases, which are more suitable for the psychologist, and may yield to psychotherapy combined with the treatment usually prescribed for asthenia.

### *Indications for Operation.*

It has been suggested that when the symptoms disappear with rest and return on standing fixation of the kidney is indicated. This, however, is found in both neurasthenia and visceroptosis. It is only when the mobility interferes with the function of the kidney or that of the neighbouring organs—and this condition may, of course, coexist with general visceroptosis and neurasthenia—that operation is called for. The indications for operation may be divided into three classes.—

1. Where a movable kidney on the right side causes traction on the duodenum. This is rarely seen. When present it gives rise to attacks of vomiting that are always relieved by lying down, and must not be confused with the gastric symptoms due to visceroptosis Vomiting due to other causes must be definitely excluded.

2. When the mobility leads to attacks of pain resembling renal colic and known as Dietl's crises. Here operation is indicated, not only because the attacks will certainly recur, but also because pathological changes in the kidney may be developing Pain during an attack may be relieved by draining the pelvis of the kidney by means of the ureteral catheter. Such attacks are probably due, not to torsion of the renal pedicle, but to acute kinking of the ureter, for they can be immediately relieved by the passage of a ureteral catheter and reproduced by distension of the pelvis

3 When some obstruction of the ureter interferes with the normal peristalsis of the ureteral muscle the flow of urine is impeded. Dilatation of the renal pelvis with the formation of a hydronephrosis results, and gives rise to pain that is renal in its distribution. It is generally referred to the angle between the last rib and the erector spinæ in the lumbar region, less commonly to a point below the tip of the ninth costal cartilage or to the iliac fossa; occasionally it radiates into the groin or genital region (see diagram). It may or may not be aggravated by exercise, but is generally relieved by lying down Pain in these regions may be due to disease of other organs. That due to a hydronephrosis results from distension of the pelvis, and the great test is that pain of a similar nature and referred to the same place can be produced by injecting fluid up the ureteral catheter. Unless the pain can be thus reproduced, one should be most guarded in attributing it to a movable kidney. In many cases more urine than is normal can be drawn off from the ureteral catheter, and more can be injected before causing pain. If the injected fluid is a 12 per cent. solution of sodium iodide, the skiagram may show some dilatation of the renal pelvis. The amount that the normal pelvis holds is very variable (from 5 to 20 c.cm.) and dilatation means that pathological changes have taken place, and as our aim should be to apply treatment before this has happened, the first sign is that a pain similar to that complained of can be produced by distending the pelvis.

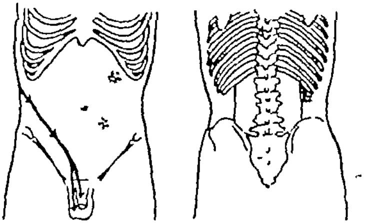

Diagram showing the regions where renal pain is felt.

*Hæmaturia* is sometimes seen apart from Dietl's crises When the common diseases that give rise to it have been excluded, it suggests that dilatation of the pelvis is taking place and is an indication for operation

### *Technique of the Operation.*

The lumbar incision should be sufficiently long to allow the pelvis and the upper end of the ureter to be examined. The kidney should be approached as if it were one giving rise to pain that is difficult to explain. Such conditions as a pure uric acid stone or a papilloma of the renal pelvis, which often escape our present methods of investigation, should be borne in mind. If there is any doubt, the pelvis should be opened and explored and a probe passed into the calyces. Aberrant renal arteries are often found and should be divided. Probably a more constant cause of disordered function are certain fibrous bands found compressing the ureter. They probably correspond to the fibrous bands which pass between the capsule of the kidney and the perirenal fascia. If present, they should always be divided. The perirenal fat is then removed, and the capsule of the kidney is reflected outwards and attached with strong catgut to the quadratus lumborum The sutures should not penetrate the cortex of the kidney If the neighbouring viscera are lying very low the kidney should not be fixed in the normal position, as its pedicle is likely to be compressed The patient should be kept lying down for at least three weeks; it is unnecessary to have the foot of the bed raised. A Curtis belt should have been ordered before the operation and should be worn in bed after the stitches have been removed, since its pressure may give rise to some discomfort at first. If the skin is treated with spirit and talc and the belt worn for a longer time each day, the discomfort should have disappeared by the time the patient is allowed up Active exercise should only be gradually resumed. The view that the presence of the movable kidney must be concealed from the patient dates from the time when the pathology of the condition was by no means clear and must not be allowed to interfere with proper investigation of symptoms] on lines indicated above.

Of the movable kidneys that are discovered during routine examinations, probably less than 2 per cent. will require operation and the greatest care should be taken in their selection.

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# Special Articles.

## THE DOCTOR'S CAR.

(From our Motoring Correspondent.)

### *How to Adjust Four-Wheel Brakes.*

Braking on all wheels is ideal when the system is properly adjusted; otherwise it is highly dangerous. Although it is almost universal practice to set the rear brakes to touch first, there is a lot to be said for allowing the lead to the front pair, for contrary to what might be supposed the back of the car is much more inclined to stay behind the driver when the front wheels are braked, especially on a down-grade. If the front wheels lock, however, the steering is completely useless; but this should never happen to a careful driver, who will use his hand-brake instead of applying the last ounce of force on the pedal. Many authorities prefer to use the pedal chiefly for the front wheels and rely on the hand-brake to apply the last ounce of force on the rear.

The most important point is that each pair should go on absolutely together, and the following is the best way of ensuring this. We will assume that the rear brakes are to have the lead. A sits in the driving seat and B slacks the thumb-nuts of the front brakes well off. He then sets up the back brakes so that they just touch when the pedal is not pressed, and the best way of discovering the exact point at which the shoe touches is to tap the drum with a pocket-knife and note when the metallic ring is deadened. B then slacks the nuts back two turns each and, holding a knife or small tool in each hand to tap the drums, commands A to press the pedal very slowly. B, keeping up a continuous tapping on the drums, can then hear if one brake comes on before the other and adjust accordingly. When the back brakes are synchronised he goes to the front and gets A to put on a light pressure, as he would if he wished to slow down for a block some distance away with plenty of time in hand. B then tightens the nuts till the ring is deadened and tests with A for synchronisation, just as he did at the back. This will give a good, efficient setting. It is vital to keep four-wheel brakes properly adjusted, as to drive on a greasy day with one front brake going on long before the rest is to ask for serious trouble. Incidentally, the introduction of four-wheel braking forces makers to fit much more convenient adjusting nuts than they ever used to supply for a single pair of brakes.

### *Car Prices in 1926.*

Now that the market is at a low ebb for both new and second-hand cars, many practitioners will be considering purchase. They would be well advised not to delay, as the spring always produces a large crop of orders and the more popular makers develop a long waiting-list. Moreover, the price of second-hand cars goes up with a rush. The *Motor* recently issued as a supplement a booklet which gives the price, engine dimensions, tax, and particulars of the gears and brakes of nearly every car on the English market, with the maker's address. Medical men who are thinking of buying a car should expend 6*d.* on a copy. Except for the Ford 2-seater at £120, the cheapest car remains the Trojan, all models of which are fitted with pneumatic tyres for £5 extra. The pneumatic-tyred touring model is £130 and the saloon £158. Next comes the Austin 7 at £149 and the Jowett 7 at £150, with the saloon at £200 on a longer chassis. The Jowett has slightly the larger engine, and pulls its saloon with surprising ease, but the baby Austin is extremely fast and lively and is conspicuous for its leg-room; its "boot" will hold a great deal of luggage. It has four-wheel brakes, but the front and the back wheels are braked independently. Then there is the small Peugeot 7 at £155, or £165 with the cabriolet body. This is the smallest car in the list, having a capacity of only 719 c.c., but develops amazing power for its size. The Morris-Cowley 2-seater is wonderful value at £162 10*s.* without and £170 with f.w.b. The fixed head coupé at £195 will appeal to many practitioners. This car has very sweet controls and an exceptionally silent and trustworthy starter. Clyno make an 11 and a 13. The right-hand control and the large front-wheel brakes are good features. Two qualities of bodywork are fitted to the 11; the Standard 2-seater with f.w.b. costs £170 and the Royal £210. The 13 2-seater costs £245 and the coupé £285. The Chevrolet 20 is another example of the cheap American school at £165 for the 5-seater. The Rover 9 superseded the well-known air-cooled 8, and has a very efficient overhead-valve engine; the 2-seater costs £185, and another old-established firm (Lea-Francis) make a 10 and a 12 at £210 and £275 with four-wheel brakes (f.w.b.) for the 2-seater. The Gwynne 8 with its lively little engine costs £225. From this price upwards there are an embarrassing number of sound propositions. The Morris-Oxford has the virtues of the Cowley combined with a larger engine and more luxury. The 2-seater costs only £240, and the covered models £295 (three-quarter coupé) and £330 (cabriolet). A.C.'s have a new Sovereign model at £250. The Wolseley 11–22, with f.w.b. optional, is popular with the practitioner, since it has a certain air of dignity as well as being a first-class motor-car. The two 2-seater models cost £235 and £265, and the light saloon £295. The Essex 6-cylinder coach has come down to £280. The Hillman 14 touring car at £295 is a fine example of medium-powered English practice, and another model new this year is the Standard 12, which with the all-weather touring body costs £275. For those who can afford up to £400 there are the Armstrong-Siddeley 14 at £330 for the 2-seater with f.w.b.; the Hampton 12 coupé at £345 with f.w.b.; the Phœnix 11·9 all-weather at £365; the Riley 12 saloon with f.w.b. at £395; and 6-cylinder Overland 22 saloons at £340 and £375, with f.w.b. Studebakers' make three 6-cylinder cars rated at 27, 29, and 35. The 27 2–3-seater touring saloon is good American value at £390. All these cars have hydraulic f.w.b. It is extraordinary how few cars are priced between £400 and £500. This seems to be the gap between two distinct markets. The Cluley 14–30 saloon (f.w.b.) at £475 and the Crossley 14 coach (f.w.b.) at £455 do their best to fill it; the Calthorpe 6-cylinder 15–45 (f.w.b.) also comes in this interval with £425 for the touring model, which is very good value. Over £500, however, the range of choice is almost infinite. The Humber 12–25 coupé or saloon at £555 is a splendid and reliable car; Vauxhalls' make two open 14–40 models with f.w.b. at £550; the Canadian Buick 20–58 overhead valve 6-cylinder with f.w.b. and 4-door saloon costs £550. The Talbot 12–30 6-cylinder coupé at £555 and the Rover 14–45 coupé with f.w.b. at £660 are first-class English cars.

For the few who look higher there is the Aston-Martin 11·9 coupé at £825. The touring model costs £725. This is in a different class from all other small cars. The chassis is made up entirely by hand, and the parts are mated by craftsmen; when it is completely assembled it is run in thoroughly, and the owner can then do what he likes with it, without any attention but ordinary greasing and cleaning. Daimlers' have six distinct 6-cylinder chassis to choose from, varying from 16 to 45 h.p. with a wide choice of bodywork for each. All have the silent Knight engine. The 16 saloon "Y" costs £715; this has three speeds; all the others have four. The 30 enclosed laudaulet costs £1900, and the type N 45 costs £2250. Bentleys' make a very fine 15·9 light tourer at £995 and a standard coupé at £1350; and the Rolls-Royce 20 6-cylinder chassis at £1100, with f.w.b. £85 more, is now well known. Lanchester 21 6-cylinder short chassis at £1000 and long chassis at £1050; the Ford-Lincoln 8-cylinder 5-seater coupé at £1350; the Hispano-Suiza chassis at £1650; the Isotta-Fraschini chassis at £1550; and the big Rolls long chassis at £1000 are other examples of the most expensive class. The largest engine on the market is that of the Renault 45 6-cylinder, the capacity of which is 9 litres. The long chassis costs £1050.

### *On Gloves.*

Not many doctors clean their own cars except in an emergency, but if this should arise a pair of waterproof gloves are invaluable. The "Cozee" washing-glove (H. Baily and Co, Ltd., Glastonbury, Somerset) is made of best English sheep-skin, chrome-tanned by a special process, and is impervious to water. The thick soft fleece will hold water but no grit, is very soft on paint-work but effectually loosens the dirt. Inside the glove is a convenient grip-bar, with slots for the fingers, and a cow-hide cuff protects the user's wrist, around which it tightens with a strap and a rustless buckle. The dimensions of the glove are about 11 in. and 9 in., and its price is 8*s*. 6*d*. Dry, it makes an excellent polisher. If such gloves are not available, rubber gloves of which the wrists can be tied over a mackintosh, can be obtained at 6*d*. each at Woolworth's. Before starting operations involving the use of grease or oil, without gloves, both hands should be rubbed over with nearly dry soap and the nails filled up. Should this precaution have been omitted, Gresolvent is useful for cleaning hands. On the subject of gloves, every motorist who drives at night, especially in suburbs where traffic is thick, lives in fear that overtaking cars may not see his signalling hand. A loose white gauntlet without fingers, such as any needlewoman can make in 20 minutes, slipped over a driving glove is conspicuous even in a dim light.

### *Pictorial Road Plans.*

The third of the series of pictorial road plans, published at 6*d*. each for the Dunlop Rubber Co. by E. J. Burrows and Co, 43, Kingsway, London, has reached us. It describes the Bath road and the alternative roads from London to Milford Haven, via Brecon and via Cardiff and Swansea. The little pictures of places and things to be seen on the road will enhance the pleasure of the run. Milestones are clearly marked and the height of the road above sea level indicated at various points. Clear large scale maps of every important town crossed are given. The only suggestions we would offer concern these. Experienced motorists passing through Reading towards Bath do not follow the road outlined, but take the more direct route through Berkeley-avenue, avoiding much traffic and rejoining the main road just before it crosses the Great Western Railway. The town of Bristol presents exceptional difficulties to the stranger, who will welcome the help here given; the indication of the position of the "tramway centre," to which he is sure to be referred by friendly townsmen or the local police, would put him in a position to make intelligent use of their advice.

## MEDICINE AND THE LAW.

### POINTS FROM RECENT INQUESTS.

THOUGH the Home Office has not made conspicuous progress of late with legislative proposals in which it is interested, there is hope that Parliament may shortly pass the Government Bill for amending the law relating to coroners. If so, the whole subject will doubtless be dealt with thereafter by a consolidating statute. Meanwhile inquests continue to disclose points worth considering when the amendment of the existing law is undertaken. At the Wiltshire Assizes a fortnight ago John Lincoln was charged with the murder of Edward Charles Richards. An inquest had been opened on the death of Richards, but the coroner (Mr. A. L. Forrester) had exercised a wise discretion in confining the inquiry to evidence as to the nature of the dead man's wounds, the question of criminal responsibility having been taken up by the magistrates. While the inquest stood adjourned, the trial at the assizes proceeded and resulted in the conviction of Lincoln as the murderer. There was thus no further need for the coroner to investigate the cause of Richards's death, and the jury were brought together again to record a formal verdict. As the evidence at the inquest had been confined to the wounds only, the coroner suggested that the verdict should be that the deceased was shot by a person not identified and against whom no evidence had been offered in that court. The coroner's jury evidently stood upon its dignity. One juryman is reported by the *Times* to have objected strongly to a jury being asked to agree against its own convictions. Eventually, after a long absence, the suggested verdict was returned, but the foreman announced that the jury decided to add a rider, and, when the coroner refused to accept any rider, said: "We are of opinion that there has been a grave miscarriage of justice."

Provision is made in the Coroners Bill for avoiding the simultaneous conduct of proceedings before magistrates and coroner in such a case, but it is interesting to note that coroners' juries may resent the usurpation of their time-honoured functions. Where the cause of death is conclusively established by a conviction for murder, it might be better to let that fact operate as the termination of an adjourned inquest.

Another matter for consideration in any amendment of the law is the question of the place where inquests are to be held when death is the result of a motor accident. At present an inquest is held at the place where the body lies. The proper place, suggests Mr. C. W. W. Surridge, the Manchester city coroner, is the place where the accident occurs, where the coroner and jury (if a jury is required) can contribute and employ the knowledge they possess of the locality. "The barrier," said Mr. Surridge, "which prevents this common-sense procedure is that the law enforces the viewing of the body by the coroner; I deeply regret that the draft of the new Coroners Bill perpetuates this useless anachronism." Here, as in the Trowbridge inquest, one detects the survival of the ancient function of the jury, which was to declare the facts they knew rather than to listen to evidence of which they may be supposed ignorant.

Nothing seems to be attempted by the Bill in the direction of another quite different matter—the holding of inquests by coroners into outbreaks of fire. There has been some official backing for this proposal, and it has been strongly advocated by Dr. F. J. Waldo, who, as coroner for the City of London, has unique jurisdiction of this nature. There are frequently occasions where arson is suspected and where judicial investigation would be valuable, though it may be that the coroner is not necessarily the best tribunal for the purpose. Yet another question of the coroner's functions is raised by a recent incident at Leigh. There was something of a scene at an inquest, one herbalist after another being removed protesting from the coroner's court. A correspondent of the *Manchester Guardian* asks under which section of the Coroners Acts a coroner can consider himself authorised to hold an inquest where people are attended by an unregistered medical practitioner. He suggests that, if a coroner acts for any other purpose than to inquire into the death of a person within the provisions of Section 3 of the Act of 1887, he exceeds his powers and justifies a protest. Each case depends, of course, upon its own set of facts, and there is the high authority of Mr. Justice Stephen for the principle that the coroner cannot hold inquests as a mere matter of caprice. "It would be intolerable," observed that judge, "if he had power to intrude without adequate cause upon the privacy of a family in distress, and to interfere with their arrangements for a funeral. Nothing can justify such interference except a reasonable suspicion that there may have been something peculiar in the death—that it may have been due to other causes than common illness." Without denying the truth of these dicta, it may be added that the coroner's discretion is not likely to be interfered with lightly.

If he does not hold an inquest when he should, the courts will direct him to investigate. If he holds an inquest when he need not, there is only the indirect remedy of addressing the Lord Chancellor for his removal. As to the particular case under discussion, it is perhaps sufficient to say that if coroners are expected and entitled to investigate allegations of negligent treatment by practitioners, the qualifications and methods of the person administering treatment are circumstances of material significance.

### REGISTRATION OF OPTICAL PRACTITIONERS: A NEW BILL.

The draft of a Bill to secure "the registration of optical practitioners and to regulate the practice of sight-testing and optical dispensing and for purposes incidental thereto," has been issued by the Joint Council of Qualified Opticians. The Bill is largely modelled upon the Acts which govern the profession of dentistry and is an ambitious proposal to standardise two new professional types, optometrists and dispensing opticians, and to set up a central optical board, a register, and a monopoly of practice. We find in the Bill no defined or assured standards of teaching, training, examination, or conduct. This would seem inevitable, since the standards and the system of education for the new profession, to which the Bill proposes to grant privilege and protection, do not yet exist; nor is there any college or other institution which can suitably furnish them. It is unlikely that Parliament would consent to grant a vocational monopoly in these circumstances, and ophthalmologists who feel strongly that such innovations would be against the public interest need not, we think, be disturbed by the introduction of this Bill.

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## VIENNA.

(FROM OUR OWN CORRESPONDENT.)

### *Suicides in Vienna.*

IN the year 1925 the number of persons who committed suicide was 2259, of whom 53 per cent. were males. In 1914 the figure was 1286. It fell during the war to reach 700 in 1917, but since then there has been a fairly steady rise. For the first four years after the war the number stood at about 1200 (though it fell to 923 in 1922), but in 1923 it rose to 1458, in 1924 it was 1870, and last year it jumped up again to the huge total mentioned. During the same period the population has been steadily falling—in 1914 it was 2,120,000, in 1920 1,806,000, and in 1924 1,801,000—and the inference is that economic and psychical conditions in this city are far from satisfactory. The most usual means of suicide is by poison.

### *Lawyers and Abortion.*

At a mass meeting of the practitioners of the ninth Vienna district at which the problem of the interruption of pregnancy was discussed, an important statement was made by Dr. Altmann, President of the Court of Justice, who pointed out that the attitude of the courts at the time of passing the law (1759, 1802, 1841) was that of strict condemnation of abortion except when the life of the mother was in actual danger. Even then it was not very easily accepted. Up till quite recently the standpoint of the courts hardly changed at all, and except during the few years of the war, when vigilance relaxed somewhat, the same conditions prevailed. Two years ago, in fact, a renewed warning to the profession was issued by the Supreme Court. This met with indignant repudiation from many quarters, especially from eugenists. The new Act dealing with this subject, which is in preparation, recognises the necessity of taking into consideration not only danger to life, but also danger to health as being possible indications for abortion. Prof. Tandler, head of the Municipal Board of Health and Charities, strongly advocated in the discussion the necessity of recognising the social or economic factor as an indication for medical abortion. He is in favour of handing over the decision in each case to a committee of three, consisting of a physician, a public officer of law or administration, and a mother. This body would have to consider the case individually, and if it agreed on the advisability the operation would be allowed. The increase of population by the offspring of the mentally defective, the syphilitic, and the morally insane ought, he considers, to be prevented if possible.

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## UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

### *The Prevalence of Cancer.*

ALTHOUGH it is generally believed that cancer is rapidly increasing, a statistical study just published in New York does not support this view. The statistical bureau of the New York Metropolitan Life Insurance Company has issued a report on an analysis of deaths from cancer amongst its industrial policyholders covering a period of some 14 years which deals with 90,175 cases. Dr. Louis L. Dublin and his assistants, who are the authors of the report, are distinctly reassuring about the situation, and conclude that the increase in cancer has been small—much smaller than might be inferred from an analysis of the published crude death-rate. Such as it is, the increase has been confined almost entirely to males, though the death-rate from cancer has always been higher amongst females. The increase has been largely in the later age-groups in each sex, perhaps because the average span of life has increased during the past 30 or 40 years. The white race is more prone to cancer than the coloured, and some nationalities of the white race are more susceptible than others. According to the annual report of Dr. A. Lessard, Director of the Bureau of Hygiene of the Province of Quebec, the citizens of English nationality appear to be more susceptible to cancer than their French Canadian neighbours, and the report of the Metropolitan Life Insurance Company states that the Russian immigrants seem most susceptible, that the Irish come next, and that the English, Scotch, and Welsh are affected in that order. The Italians are remarkably free from malignant disease, and the question naturally arises what light this throws on the influence of diet.

### *Pan-American Red Cross Conference.*

Seventeen nations have been invited by President Coolidge to attend the second Pan-American Red Cross Conference to be held in Washington from May 25th to June 5th next, under the auspices of the League of Red Cross Societies. It is expected that arrangements will be made for concerted relief for the victims of earthquakes and other major disasters, and for the participation of the societies represented in schemes designed to raise the standard of health of the entire Western Hemisphere. The agenda of the conference includes such subjects as child welfare, prevention of infantile tuberculosis, school hygiene, organisation of summer colonies and school dispensaries, popular health instruction, and the combating of malaria, hookworm, and other diseases. Besides Canada and all the nations of South America which have been invited to the conference, the Oriental Leagues of Red Cross Societies are expected to send delegates, and each Society has been invited to bring representatives of the public health organisations of its Government. An announcement made recently indicates that the International Red Cross Committee in Geneva, the League of Nations, the Rockefeller Foundation, the International Council of Nurses, and many other organisations are likely to participate.

### *Brooklyn Medical Society to Admit Laymen.*

The King's County Medical Society of Brooklyn, a part of greater New York, has decided to break a precedent by allowing laymen to become associate members. They will be permitted to attend and take part in all the regular meetings and discussions of the organisation, but will have no voice in the administration. The parent medical society of the State of New York must, however, give its approval before the change becomes effective.

### *Women's Industrial Conference at Washington.*

At the Women's Industrial Conference at Washington, which opened on Jan. 19th, Dr. Alice Hamilton, of the Harvard Medical School, speaking on industrial hygiene, declared that the United States Public Health Service was starved; it lacked a sufficient budget to accomplish essential experimental and research work. She contended that there were new factors in industry which were extremely dangerous to the health of the workers, and that tests should be made continually to determine their effects. The Public Health Service should do this work, and the service ought to be enlarged so that it could undertake the task successfully.

### *Saratoga Spa.*

A scheme has been formulated for developing the New York State mineral spring reservation at Saratoga Springs into a great public watering-place, equipped after the fashion of the famous spas of Europe. The suggested expansion, which, it is said, will give the public the full benefit of New York State's valuable mineral water resources, is estimated at $9,000,000. For several years the money available for the development of the Saratoga reservation has barely sufficed to provide bathing accommodation for the people who visited the springs, and lack of funds has prevented the establishment of a regular water cure. The popularity of the treatment provided has, however, been steadily increasing.

# Public Health Services.

## NURSING AT THE SHIRLEY WARREN INFIRMARY.

A REPORT by the medical superintendent, Dr. E. L. White, reveals the unsatisfactory conditions under which nurses have been working at the Shirley Warren Infirmary, Southampton. During the last three and a half years eight nurses have contracted pulmonary tuberculosis and four of these have died, and the number warded in the sick-room has risen from 21 in the last six months of 1922 to 54 in the corresponding half of 1925. The illnesses, it appears, are more serious and last longer than formerly, and there has been at the same time a steadily increasing amount of disability not needing sick-room treatment. In Dr. White's opinion the sickness amongst the staff has been directly due to their hours of duty among the very heavy cases in the overcrowded wards. At this infirmary the total nursing staff (excluding the matron and her assistant) is 61, and the number of patients is 405. The nurse-patient ratio during the day is 1–10, and at night it is 1–34. The sister-patient ratio is 1–83 in the day and 1–250 at night. Junior probationers work 60 hours a week, staff nurses 62, and night nurses 65. The sisters have theoretically a 48-hour week; but in practice all these figures are a too low estimate, because neither nurses nor sisters can leave their wards at the appointed times on account of the high pressure of work, and meals are taken hurriedly out of proper hours.

No one can defend these conditions of duty, while Dr. White has pointed out that long hours do not form the only introduction to ill-health among the nursing staff. He says:—

> "The obligations laid upon the guardians by the General Nursing Council, as the determining authority for State registration of nurses, increase the strain thrown upon the probationers, who are constantly being prepared in classes and on the wards for the preliminary and final examinations of the Council. These examinations are held every three months and I am obliged to keep the nurses studying continuously for the examinations, because it is in the interest of the whole staff that as many out of each batch presenting themselves should pass the examiners; otherwise the number for preparation increases, the wards are depleted more and more as the candidates are drawn from them for their lectures or demonstrations, and the number of probationers who can be pushed on towards completion of their training diminishes, therefore preventing the senior posts rendered vacant by consecutive resignations of the certificated staff nurses being filled by competent probationers well abreast of their studies. Although I myself am on the Board of Examiners of the General Nursing Council, I do feel that the continual worry and anxiety caused to girls in the early months of their training, through contemplation of the enormous quantity of theoretical knowledge to be acquired before they can acquit themselves with credit at the examinations, is a determining and detrimental factor in our present difficulties. It is frequently happening that nurses leave, or very seriously think of doing so, because of this quite unnecessary spectre looming ahead of their careers; not only so, but I am of opinion that the more conscientious and hard-reading girl is rendered less capable physically by reason of the high pressure at which she must take her so-called off-duty time—too largely eaten into by stewing in class-room or bedroom over problems laid carefully by thoughtless cranks in the path of women totally unable, from a variety of causes, to deal even partially and superficially with them."

That the physical type of would-be probationers is not so satisfactory as it used to be is an unfortunate addition to the circumstances which reinforces Dr. White's recommendation of an increase of 11 in the staff. The guardians have, in fact, arranged for their appointment, and have resolved that suitable accommodation should be provided for them. But Dr. White's report raises important issues which must not be forgotten because the arrangements at Shirley Warren are likely to improve. It is deplorable that they should ever have existed, and the story is a sufficient reply to those who consider that a waning public spirit in the young is responsible for the decreased entry to the nursing profession. There is a growing demand for healthy conditions of life, and it is essential that there should never be any hint that nurses are exploited.

## *INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN. 30TH, 1926.*

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 365 (last week 369); scarlet fever, 2019 (last week 1818); diphtheria, 1210 (last week 1006); enteric fever, 33; pneumonia, 1351; puerperal fever, 74; cerebro-spinal fever, 8; acute poliomyelitis, 7; encephalitis lethargica, 66; dysentery, 4; ophthalmia neonatorum, 108. There were no cases of cholera, plague, or typhus notified during the week.

Of the 365 cases of small-pox, 43 (last week 26) were reported from the county of Derby, 30 of them from Derby C.B.; 182 (last week 175) from the county of Durham, 28 being from Gateshead C.B., 4 from South Shields C.B., and 1 from Sunderland C.B., the remainder being from widely scattered urban and rural districts and including 16 (last week 44) from Blaydon, 11 from Tanfield, 11 from Whickham, 26 from Chester-le-Street R.D., 14 from Easington R.D., and 18 from Sunderland R.D.; 51 (last week, 53) from the county of Northumberland, including 2 (last week 6) from Newcastle-on-Tyne, 12 from Ashington, and 28 from Morpeth R.D.; 13 (last week 8) from the county of Nottingham, including 10 from Sutton-in-Ashfield; 9 (last week 6) from the East Riding of Yorkshire, of which 8 were from Kingston-upon-Hull; and 68 (last week 62) from the West Riding, of which 60 (last week 70) occurred in Rawmarsh. No case was reported this week from the counties of Lincoln or Lancaster.

*Deaths.*—In the aggregate of great towns, including London, there were 5 deaths from enteric fever, none from small-pox, 102 (60) from measles, 13 (1) from scarlet fever, 53 (1) from whooping-cough, 33 (0) from diphtheria, 52 (11) from diarrhœa and enteritis under 2 years of age, and 100 (14) from influenza. The figures in parentheses are those for London itself. The mortality from influenza is again increasing, the figures for the last three weeks, working backwards, being, 100, 87, and 81.

# Correspondence.

"Audi alteram partem."

## CORONARY EMBOLISM.

*To the Editor of* THE LANCET.

SIR,—As attention has recently been drawn in THE LANCET by Dr. Charles H. Miller to the occurrence of embolism of the coronary arteries and by others to cases of coronary thrombosis it may be of interest to mention the following fatal case of coronary embolism.

A young coal-miner in apparently normal health went to his work as usual. Soon afterwards he was found lying dead in the pit without any sign of external injury. In order to ascertain the cause of the man's death the surgeon to the colliery performed an autopsy at which I was present at the request of the colliery owners. At first we failed to find any obvious explanation of the man's sudden death, but a closer scrutiny of the heart and aorta revealed the presence of the base of a single small vegetation, about the size of a pin's head, situated on the wall of the aorta close to the orifice of one of the coronary arteries. On opening up this coronary artery it was found to be plugged by a fresh embolus. This embolus had evidently become detached from the wall of the aorta and had been caught by the stream of blood entering the coronary artery and carried along until it was arrested at the point at which it was found. The sudden occlusion of this coronary artery and the consequent ischæmia of the heart wall supplied by it had evidently caused the sudden cardiac failure.

Prof. W. H. Welch states that the coronary artery is the rarest situation in which an embolus occurs. As a rule, emboli coming from the heart are swept past the opening of the coronary artery to be lodged elsewhere, so that in this case it was simply the position of the vegetation so near the origin of the coronary artery which determined the fatal course of the embolus.—I am, Sir, yours faithfully,

Manchester, Feb. 8th, 1926. GEORGE R. MURRAY.

## BONE-SETTING AND OSTEOPATHY.

*To the Editor of* THE LANCET.

SIR,—The enclosed letter was sent to the *Times*, but has not appeared. It has received the approval of certain of my colleagues and you may think that its publication would be useful in view of the public importance of the situation set out.

I am, Sir, yours faithfully,
A. S. BLUNDELL BANKART.

Harley-street, W., Feb. 8th, 1926.

[ENCLOSURE.]

*To the Editor of* THE TIMES.

SIR,—Some of us have known from the first the real motive underlying the agitation about "the case of Dr. Axham." But, until Sir Herbert Barker's letter appeared in your issue of Jan. 23rd, the public may not have realised that this is a political agitation on the part of (American) osteopaths, chiropractors, and others, for legal status in this country. The "more fundamental issue" is now, however, made clear, and it is well that the public should be informed of some of the facts.

Orthopædic surgeons are rather sorry that Sir Herbert Barker has identified himself with this movement, because his own reputation has been made in the practice of straightforward manipulative surgery, which is quite a different thing from osteopathy and chiropractic.

For very many years in this country that part of manipulative surgery which is practised by unqualified persons has been called "bone-setting." It is based upon the fact that many of the minor injuries that occur among healthy people at work or at play are followed by some limitation of the normal movement of a joint, due to some thickening and contraction in a ligament or muscle, or to adhesion between surfaces which should glide over one another, or to some detached portion of a cartilage getting in the way. Many of these conditions are promptly relieved by manipulation which breaks down or removes the obstruction and restores normal movement to the joint.

This kind of manipulative surgery has long been known and practised by orthopædic surgeons. But it is only in comparatively recent years that orthopædic surgery has been recognised in this country, and admittedly it has been neglected by the medical profession generally. Hence it comes about that individuals requiring manipulative treatment often seek relief in vain from surgeons who are well known or even famous in other branches of surgery, but who do not practise manipulative surgery.

The unqualified bone-setter is on fairly safe ground so long as he confines his attentions to the effects of minor injuries in healthy adults. But when he essays to manipulate stiff joints in children and some others, which require surgical knowledge and training for their correct diagnosis, he is asking for trouble, and he almost invariably gets it.

Osteopathy and chiropractic are quite different from manipulative surgery or bone-setting. They are typical Yankee money-making stunts. The osteopaths have invented an imaginary "lesion" of the spine. It is a displacement of the little joints so subtle that it cannot be detected by the X rays nor by anyone who has had the training of a surgeon. This displacement is alleged to narrow the space between two adjacent vertebræ of the spine, so that the nerves which come out between them are pressed upon. Lastly, this pressure is said to produce far-reaching effects upon the distant parts of the body supplied by those nerves. The treatment consists in correcting these imaginary displacements by repeated manipulations of the spine.

Some 30,000 persons—a large proportion of them uneducated and even illiterate—are practising this "art" in America and Canada. A few have obtained a better education and have taken medical degrees. It is noteworthy that as soon as an osteopath becomes medically qualified he has to discard the first principle of osteopathy—namely, pressure on the nerves by the displaced vertebræ, because it happens to be an anatomical impossibility. But that does not matter; he has invented another theory, equally imaginary, but a little more difficult to disprove—namely, that the effects are produced, not by pressure, but by "congestion" in the neighbourhood of the displaced vertebræ. There is, as a matter of fact, no evidence to show that such congestion occurs, or that, if it did, it would produce any of the effects that are conveniently attributed to it.

Osteopaths have sought to support their claims by "research work." The results of this work will be found in the *Bulletin* of the A. T. Still Research Institute, Nos. 1–5, published by F. Bischoff, 27, East Munro-street, Chicago. The impression left on one's mind after reading these volumes is that a few individuals with little, if any, scientific training, have got together with some large text-books of physiology and unlimited opportunities for performing the crudest experiments on animals, and have produced a mass of irrelevant facts, incredible observations, and wholly unwarranted deductions, beside which the more commonplace quack advertisement pales. It is not possible to find in them a single observation that any educated person would accept as of the slightest scientific value, and it is impossible to conceive what purpose this literature serves other than as propaganda to bolster up a preconceived and evidently false doctrine.

It should, however, be said that, just as a quack medicine sometimes contains a useful drug, so the manipulations of the osteopath sometimes do good. For, among their cases osteopaths number some of genuinely strained backs in which movements are restricted by adhesions about the joints or in the muscles, just as in other regions, and these can certainly be relieved by manipulations. But this is straightforward manipulative surgery or bone-setting, and not osteopathy. Moreover, a large proportion of these patients are known to be highly neurotic, and the manipulations of the osteopath for the time being produce a profound mental impression on them.

The chiropractor differs little from the osteopath, except that he does not extend his activities beyond manipulation of the spine, while in many cases at least the osteopath also does bone-setting.

Orthopædic surgeons appreciate much of the work of the genuine "bone-setter," and the public should not be misled into thinking that the essentially American osteopaths and chiropractors are of the same order.

I am, etc.,
(Signed) A. S. BLUNDELL BANKART.

London, W., Jan. 26th, 1926.

## THYROID GLAND AND CALCIUM THERAPY.

*To the Editor of* THE LANCET.

SIR,—Dr. H. W. Barber in his letter in your last issue invites opinions as to the value of calcium salts in the treatment of chilblains, and states that most of the patients who come to him have already taken calcium lactate over a long period without striking benefit. My own experience is that calcium salts are effectual in a large number of cases, but that there is a fairly extensive residuum of patients in whom they are valueless. The use of calcium as a possible remedy for chilblains is now so widely known throughout the profession that it is given in the majority of cases at the first interview between the patient and the doctor, and in many cases it acts like a charm. I would suggest that the patients in whom Dr. Barber finds it useless belong to the residuum who derive no benefit from calcium.

I agree with Dr. Barber in his conclusions as to the lack of value of parathyroid in dermatological practice. It is the fashion at the moment to ascribe to a disordered endocrine system the production of any disease whose causation is unknown, and this tendency is apt to blind us to more tangible possibilities.

I have often wondered whether the dietetic factor enters into the ætiology of chilblains to a greater extent than is recognised at present. During the latter part of the war chilblains appeared to be more prevalent than now, and I have known patients who found a remarkable improvement in their condition when they were able to discard the margarine of those lean years and resume butter as a regular article of diet. Could we but follow our patients in the daily routine of their lives we should be surprised, I believe, at their startling ignorance of the elementary laws of health and not least in the matter of what constitutes an adequate diet.

I am, Sir, yours faithfully,
JOHN ALEXANDER DRAKE.
Harley-street, W., Feb 8th, 1926.

*To the Editor of* THE LANCET.

SIR,—The interesting and suggestive letter in your last issue from Dr. Barber touches on so many points of importance that I venture to ask you once more for the courtesy of your columns.

Dr. Barber lays stress upon the type of individual who develops chilblains. He points out that the sufferers from *pernio* often show other signs of circulatory sluggishness, especially noticeable in their fat and "œdematous-looking" legs—unsightly members characterised by *keratosis pilaris*. My therapeutic experience in this type of patient leads me into general agreement with Dr. Barber's conclusions—namely, that they do not derive benefit from either parathyroid or calcium administration. I have regarded the sufferers in this class as owing their vascular torpor and obese tendency to an underlying pituitary deficiency. Their treatment on empirical lines with thyroid and pituitary substance has, in some instances, been followed by marked improvement, both subjectively and objectively.

Dr. Barber concludes his letter by a suggestion that the basic abnormality present in these patients may possibly be intestinal auto-intoxication; but he does not think that this is the only factor. It is an interesting fact that these cases occur nearly exclusively in girls during adolescence, at a time when considerable demands are made upon the triad—ovary, thyroid, pituitary. It is quite conceivable that the presence of toxins in the blood, in addition to the strain entailed by growth, may be sufficient to produce a very considerable disturbance in the endocrine hierarchy. Moreover, in more than one case of this kind which has come under my notice there have been very decided indications of definite pituitary lesions in other members of the family, which suggested that the familial stability of this gland may not be above suspicion. In patients who belong to other types it is worth while, in my judgment, to administer parathyroid and calcium, until it is obvious that these remedies are failing to improve the lesions.

Dr. Grove, in his letter, suggests that the major premise of my letter is incorrect, "namely, that chilblains are associated with calcium deficiency." In support of this he informs us that, from the examination of two cases "we have expressly stated that the cases of chilblains had normal blood calcium." He admits that "chilblains are very deceptive things to treat." I would like to go further and suggest to him that they are also very deceptive "things" upon which to dogmatise, especially where such a factor as calcium metabolism is concerned. Two cases seem a small allowance upon which to base a generalisation. Again, Dr. Grove writes: "I do not know who originally stated that chilblains had calcium deficiency." I regret that I am unable to inform him on this point, but he may be glad to be reminded that so long ago as 1896 Sir Almroth Wright showed that chloride of calcium notably increased the coagulability of the blood, and that this was in all probability the commencement from which calcium therapy in chilblains, erythema, and urticaria arose. It would be very instructive if the blood in a large number of patients suffering from chilblains could be examined under differing circumstances, and under various climatic conditions, and the calcium content determined.

Finally, I am glad to know that Dr. Grove finds injections of sodium cacodylate so certain a cure. No doubt the arsenic element assists the general nutrition of the skin.

I am, Sir, yours faithfully,
IVO GEIKIE COBB.
Queen Anne-street, W., Feb. 8th, 1926.

## THE TREATMENT OF TINNITUS AURIUM.

*To the Editor of* THE LANCET.

SIR,—I have been much interested in reading Mr. Mollison's article on this subject in your issue of Jan. 16th.

Briefly the classical method of treatment so well expounded there by Mr. Mollison falls under two heads. First in cases where there are objective signs it consists mainly in inflation of the Eustachian tubes with or without injection of vapours and the use of the bougie, and in cases without objective signs, whatever the cause of the deafness, and it is often quite unknown, treatment of the tinnitus runs on similar lines: "drugs and general advice with encouragement." I agree with Mr. Mollison that when carried out on these lines "the treatment of tinnitus is unfortunately often disappointing." We are not, however, compelled to confine ourselves to these classical methods. For instance, for some time I have been using a new method of treatment which has given me much better results than the classical methods of treatment.

In your issue of May 9th, 1925, I published a record of 100 patients with chronic progressive deafness. Sixty-eight per cent. of these patients, after all other methods had failed, were alleviated by treatment with the Zund-Burguet electrophonoide. Of these 100 patients 36 suffered from tinnitus and 26 of them—i.e., 72 per cent.—after the treatment found that the tinnitus had disappeared; that is to say, although the deafness had only been alleviated the tinnitus had been cured. At the present time I have two patients, one a girl aged 20 who has suffered from otosclerosis since the age of 10. She had tried every form of treatment for her deafness and tinnitus, and her parents, having been told that she would inevitably go stone deaf, have also had her taught lip-reading. Before treatment she could hear from 4 to 5 ft. on either side, after treatment she can now hear at a distance of 20 ft. on the left side and 25 ft. on the right side, and the tinnitus has disappeared. The other is an old lady of 81; she is not deaf but complains of terrible noises in the ears, of which the most annoying is a "railway whistle"; after a few treatments the railway whistle noise has disappeared, and I hope that the others will disappear also.

Apropos of the treatment with the electrophonoide I should like to say a word anent the annotation that appeared in your issue of Dec. 19th, 1925, on Massage in the Treatment of Middle-ear Deafness, as given in Vienna. I have been acquainted with this treatment for some time, and I cannot see that it compares in any way with the treatment by the electrophonoide; besides, it applies only to chronic otitis media, whereas the treatment by the electrophonoide does good also in many otherwise intractable cases of nerve deafness and otosclerosis, as I explained in my paper of May 9th. I am treating a patient at present aged 51, who has suffered from chronic otitis media for 25 years and has been given up as hopeless after having tried every kind of treatment at home and abroad including the massage treatment aforesaid. When he came to me he could hear at a distance of 3 ft. on the left side and 1 ft. on the right. After 12 treatments he can hear at a distance of 15 ft. on the left side and 5 ft. on the right; he says also that there is no comparison between the pleasantness of the two methods of treatment. I am, Sir, yours faithfully,

GEORGE C. CATHCART.

*Upper Wimpole-street, W., Feb. 8th, 1926.*

## MANIPULATIVE SURGERY.

*To the Editor of* THE LANCET.

SIR,—The article by the Registrar of the General Medical Council is very interesting to those who may not have studied the Medical Acts, but I am afraid it only intensifies the feeling which exists in the minds of many medical as well as laymen that, in the case of Dr. Axham, the Council was acting outside the legal powers conferred by those Acts. From the beginning to the end of the Act it is clear it was intended to protect the public from the action of a qualified medical man passing off an unqualified one as if he were a qualified substitute. In the case of Dr. Axham he was not a principal, and his work as an anæsthetist was distinct from the manipulative part which was performed by a well-known bone-setter, and there was no attempt to mislead the patient into believing Mr. Barker (as he then was) to be a qualified medical man.

From the first paragraph of the Act it is obvious that the continued existence of unqualified practitioners was contemplated. At the time when Sir Herbert Barker, following on the late Mr. Hutton, began the practice of his work, known as "bone-setting," but now dignified with the title of "manipulative surgery," the correct and *in fact only treatment* taught students for dealing with sprains was an application of plaster-of-Paris bandages, and in my own early days in the Army Medical Service each invaliding day found us discharging men from the army with stiff joints as the result of the then orthodox treatment by plaster-of-Paris cases. As the profession *certainly does* owe its present and more rational method of treating sprains to the efforts of the old-time bone-setter, would it not be more dignified if we admitted our indebtedness? We might, in the future, advise the public as widely as it can possibly be done (by those who do not themselves practise this form of treatment so as to avoid the risks which would attend such advertising by those who do) that there is no longer any necessity to run risks of unqualified practitioners. New entrants into the field of bone-setting must go through a long training and period of experience (not by any means devoid of risk to the patients) before they arrive at real skill.

I am, Sir, yours faithfully,

BRUCE BRUCE-PORTER.

Grosvenor-street, W., Feb. 8th, 1926.

## CHARING CROSS HOSPITAL INSTITUTE OF PATHOLOGY.

*To the Editor of* THE LANCET.

SIR,—I am still of opinion, in spite of the rather irrelevant considerations which have weighed with Dr. Piney, that it is undesirable for institutions which are subsidised for other purposes to compete with ordinary businesses in this way. May we expect, on the same principle, the establishment of laundry services at cut rates by the Maida Vale and Charing Cross Hospitals? The benefit to the public health, in their respective districts, would, in my opinion, be greater than will accrue from the pathological service offered. I am, Sir, yours faithfully,

*Queen-square, W.C., Feb. 6th, 1926.* J. A. MURRAY.

## CHOLERA IN RUSSIA: A SATISFACTORY POSITION.

*To the Editor of* THE LANCET.

SIR,—We are informed that there has been a statement in one of the British newspapers to the effect that cases of Asiatic cholera were registered in the U.S.S.R. in 1926. According to the official information received by me to-day from the Commissariat of Public Health, the latest two cholera cases were registered in Soviet Russia in July, 1925. Not one case has been registered in the Union in 1926.

I am, Sir, yours faithfully,

V. N. POLOVTSEV,

Representative of the Commissariat of Public Health and the Russian Red Cross, U.S.S.R.

Southampton-row, W.C., Feb. 5th, 1926.

## HYSTERICAL DISORDERS IN CHILDREN.

*To the Editor of* THE LANCET.

SIR,—Dr. Wyllie, in his paper on Hysteria in Children, refers in his remarks on sympathetic vasomotor instability to the absence of bleeding on pin-prick which may be associated with the coldness and cyanosis of a hysterically palsied limb. It happens often, but not always, that we may thread a sharp pin, without the loss of a drop of blood, through the skin of a part which as a result of hysteria is anæsthetic or palsied or both. It also often happens that the anæsthetic skin of organic disease—e.g., tabes dorsalis—may similarly be bloodlessly transfixed, the risk of anæsthesia by suggestion being guarded against. Bloodless transfixion of the skin has come to be associated with hysterical conditions, but it has seemed to me that when it can be performed in an area of skin which is analgesic it depends on the loss of cutaneous sensibility rather than on any special condition which is giving rise to the analgesia.

I am, Sir, yours faithfully.

Harley-street, W., Feb. 8th, 1926. HILDRED CARLILL.

## INTRA-URETHRAL NEGATIVE PRESSURE DURING COITUS.

*To the Editor of* THE LANCET.

SIR,—In a footnote to a letter of mine with this title which appeared in your issue of Jan. 23rd you state that "we need more material on which to base opinions as to the value of prophylaxis."

A mass of most convincing evidence as to the value of prophylaxis was laid before the Trevethin Committee by medical witnesses who had practical first-hand experience of its use on a large scale, while criticism of the value of prophylaxis was based on theory and confined to medical witnesses who honestly stated that they had no personal experience to record. Twenty-five authoritative medical witnesses endorsed the value of prophylaxis, based on practical experience in England, Scotland, Egypt, Mesopotamia, Russia, and in the navy. You, Sir, are doubtless aware that the Conference of the United States Public Health Services and State Venereal Disease Control Officers, held at Hot Springs, Arkansas, in December, 1924, passed a resolution to the effect that "Measures of immediate disinfection to those exposed to these diseases have been proved to be scientific and practicable."

I venture, therefore, to think that it is not so much "more material on which to base opinions" that is required as a wider publicity of the material that we already possess.

I am, Sir, yours faithfully,

H. WANSEY BAYLY.

Harley-street, W., Feb. 4th, 1926.

WREXHAM HOSPITAL.—A new hospital, of which the cost, including site and furnishings, amounts to £100,000, is now approaching completion at Wrexham. Several thousand pounds have been subscribed by miners and work-people in weekly payments.

# Obituary.

## WILLIAM BATESON, F.R.S., D.Sc.,

DIRECTOR, JOHN INNES HORTICULTURAL INSTITUTION.

WE regret to announce the death on Monday last at his residence, Merton Park, Surrey, of Prof. William Bateson, the biologist who, by his close and independent researches into the subject of heredity, established his claim as a representative scientific leader, opening up fields of research and speculation whose harvest is of the finest promise to medicine.

William Bateson was the son of the Rev. Dr. W. H. Bateson, who was for 20 years the Master of St. John's College, Cambridge. He was born at Whitby in 1861, was educated at Rugby and his father's college, graduated in the first class in the Natural Science Tripos in 1882, and was duly elected a Fellow of St. John's. At that time Francis Maitland Balfour, who had just published an illuminating treatise on embryology, was appointed to a special professorship of animal morphology founded at Cambridge, and under his influence Bateson's first work had a strictly embryological outlook. But it soon took a wider shape as he became absorbed in the study of the problems of evolution. The paths into which a mass of original and intensive study led him were at first sight revolutionary—revolutionary, that is, in the eyes of those who thought that the work of Charles Darwin was finite. If that great man had been alive he would have been the first to dissociate himself from any idea that conclusions which he had arrived at were to be regarded as an unchangeable gospel, and although Bateson's studies of the phenomena of variation were regarded askance by pious Darwinians, it became clear, when his first text-book was published, that he was enunciating doctrines of fundamental importance in bringing forward arguments to show that nature was not condemned to progress only through the manifestation of imperceptible changes and acting through infinite periods of time. Bateson's brilliant "Materials for the Study of Variation" was published in 1894, and his work, with the theories which underlay it, received singular confirmation a few years later, when Mendel's three remarkable essays on heredity came to light.

So far had Bateson proceeded on similar lines that the doctrines of Mendelism were immediately clear to him, and when in 1902 he published his book, entitled "Mendel's Principles of Heredity," he was proving, though he never took up an egotistic position, that his own work was elevating the study of heredity into an organised branch of physiological science. And thus he steadily pursued his objects, and when in 1908 he was appointed professor of biology in the University of Cambridge he made the beautiful garden round his house in Grantchester a centre of intensive work for the establishment of principles which received largely the label of Mendelism though much might well have been categorised under his own name. At Grantchester a group of enthusiastic students under Bateson's direction, carried on researches into the phenomena of heredity of a valuable and practical description, while it was an amusing experience for those who went to consult Bateson in his open-air laboratory to inspect chicken-runs whose denizens were illustrating phases of nurture or motion, flowers displaying artificially produced qualities of shape or colour, and fruit bushes carefully netted and handed over to the depredations of caterpillars. A large quantity of these experiments were reported upon to an evolution committee of the Royal Society by Bateson and his assistant, Miss E. R. Saunders, and a memoir of exceptional interest was shortly afterwards published in which the hereditary variations of animals and plants, continuous and discontinuous, were recorded, as well as the specific effect that in-breeding might have in modifying the power of transmitting parental characters.

His tenure of the chair at Cambridge was brief, for in 1909 he resigned his professorship on appointment as Director of the John Innes Horticultural Institution, and Merton Park now became the scene of his continuous researches. He himself recorded in the Huxley Memorial Lecture, delivered at Birmingham, the exact position in which Darwin, Huxley, Mendel, and incidentally himself, stood in the developments of the fundamental theories of evolution. Though ever an enthusiastic advocate of Darwin's views, he showed that Huxley had always retained an article of faith excluded from the strict Darwinian creed, for to Huxley it had appeared that the importance of specific and discontinuous variation—labelled by this time the mutation theory—was of greater importance than Darwin's researches had prepared him to admit. Mendel's work pointed the way, said Bateson, to the essential fact that the forms and qualities of living things can in numberless examples be proved to depend on the presence of definite elements or factors distributed among the germ cells according to predicable systems, and the illustrations of this theory by a variety of phenomena in plants, animals, and man was the immediate work which lay under Bateson's hand. He dealt with all aspects of the subject in his work "Problems of Genetics," published in 1913, and in many communications on biological subjects; and while holding the general conclusion that with the progress of the later methods of analysis biology was passing into a new phase, he uttered warnings against the too ready acceptance of any violent generalisations.

The sum of well-deserved honours which accrued to Bateson was a large one. He was twice a medallist of the Royal Society; he was a corresponding member of scientific academies and societies all over the world; he was for two years Fullerian Professor of Physiology at the Royal Institution; he received many honorary degrees; and in 1914 he was President of the British Association at its session in Melbourne, when he took the occasion to review the discoveries made by the analytical methods of biological study in a masterly manner. The amount of personal work which had to fall under reference in telling the story[1] shows in itself the debt which science owes to Bateson.

Prof. Bateson married in 1896 Beatrice, daughter of the late Arthur Durham, senior surgeon to Guy's Hospital. She and one son survive him, two elder sons having died, one after injuries received in the war.

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

THE following appointments have been notified: Surg.-Comdrs. R. H. McGiffin to the *President*, addl., for duty in Medical Department of the Admiralty, and H. R. B. Hull to the *Queen Elizabeth*, addl., for specialist duties in the Mediterranean Fleet; Surg. Lt.-Comdrs. H. Wilks to the *Pembroke* for R.N. Barracks, temp., and F. H. Voy to the *Lucia*; Surg.-Lts. G. G. Newman to the *Ajax*, H. W. Strong to the *Iroquois*, W. McCoach to the *Pembroke* for R.M. Infirmary, Eastney, T. Madill to the *Bee*, D. Glass to the *Keppel*, and W. P. E. McIntyre to the *Wallflower*.

Surg.-Comdr. G. T. Verry is placed on the Retd. List at his own request.

### ROYAL NAVAL VOLUNTEER RESERVE.

Surg.-Capt. W. E. Harker is placed on Retd. List.

## ROYAL ARMY MEDICAL CORPS.

Maj. T. W. O. Sexton retires on retd. pay.

### ARMY DENTAL CORPS.

Capt. E. R. Saul retires, receiving a gratuity.

Temp. Capts. T. Pearson and J. L. Craig, from Genl. List, to be Capts.

### TERRITORIAL ARMY.

Capt. N. St. J. G. D. Buxton (Maj., Res. of Off.) resigns his commn. in the T.A.

G. Tudhope (late Surg. Sub-Lt., R.N.V.R.) to be Lt.

J. Kerr (late Officer Cadet, St. Andrew's University Contgt., Sen. Div., O.T.C.) to be Lt.

### TERRITORIAL DECORATION.

The Territorial Decoration has been [illegible] upon Lt.-Col. W. Archibald and Maj. O. Te [illegible]

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[1] THE LANCET, August 15th.

## ROYAL AIR FORCE.

C. J. S. O'Malley is granted a short service commission as a Flying Officer, for three years on the Active List.

N. I. Smith (Capt., R.A., T.A.) is granted a short service commission as a Flying Officer for three years on the Active List, and is seconded for employment at King's Cross Hospital, Dundee.

*Flight Lt. T. L. P. Harries is transferred to the Reserve,* Class D.2.

## INDIAN MEDICAL SERVICE.

Lt. M. Taylor to be Capt.

The King has approved the relinquishment of their temporary commissions by Capt. Satis Chandra Sen (to retain the rank of Capt.) and Lt. Arukkattur Rangaswamy Srinivasan.

# Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination of the Conjoint Board, held from Jan. 5th to 27th, the following candidates were approved in the subjects indicated, but are not eligible for diplomas:—

*Medicine.*—M. O. Abdeen, Birmingham; J. R. Armstrong, St. Bart.'s; P. G. Bentlif, Middlesex; T. W. Best, Univ. Coll.; B. Blaxill, St. Thomas's; J. L. Blonstein, Univ. Coll.; Kathleen M. Bowman-Manifold, Royal Free; E. Carew-Shaw, St. George's; Elizabeth J. Carpenter and Rose A. Carter, Royal Free; J. R. B. Chatterton, Univ. Coll.; J. G. Cox, St. Bart.'s; Lucy M. Cranage, Royal Free; K. J. Cursetji and W. W. Darley, St. Bart.'s; L. Dass, Middlesex; P. C. Datta, Calcutta; Mirabel G. Davis, King's Coll.; C. J. Dobbin, Guy's; A. F. Downie, Birmingham; A. G. Eddison, Univ. Coll.; E. S. Evans, St. Thomas's; Alice B. Field, King's Coll.; J. N. C. Ford, St. Bart.'s; R. Gallimore, London; Margaret E. J. Gashion, Charing Cross; R. S. Glennie, St. Thomas's; Marjorie Goldrich, Charing Cross; L. Golomb, Middlesex; A. F. W. Hall, Guy's; R. G. Hall, Charing Cross; Margaret A. Harrison, Royal Free; V. V. H. Ho-Akai, Guy's; Marion Hook, Boston; K. M. N. Isaacs, London; J. H. F. Jayasuriya, Middlesex; Emily E. Johnson, Leeds; J. P. Jones, *St. Mary's; Rachel I. Kessel and Olive C. Knight,* Charing Cross; C. J. Laviers, St. Bart.'s; L. Lipschitz, Berlin and Middlesex; W. H. S. McGregor, St. Bart.'s; R. M. Maher, Liverpool; Marion A. N. Marshall, St. Mary's; Florence I. J. Masterman, Royal Free; A. N. Mathias, St. Mary's; J. H. Miller, Birmingham; E. R. W. Mons-Glaser, Middlesex; Norah M. A. Niall, Charing Cross; Evelyn M. Pakeman, Royal Free; Florence M. Parsons, Charing Cross; Dorothy F. Pratt, Royal Free; Margaret M. Price, St. Mary's; Lesley M. C. Probyn, Charing Cross; W. D. B. Read, Guy's; Sibyl D. Rodgers, King's Coll.; Margaret M. Russell, King's Coll.; J. W. Schollum, Guy's; Helen D. S. C. Scott and Mary A. Silcock, Charing Cross; Evelyn C. N. Strong, Birmingham; Ma May Su, Leeds; B. C. Tate, Birmingham; O. R. Tisdall, St. Bart.'s; E. F. C. Wadge, King's Coll.; I. Waynik, Charing Cross; T. C. S. Webb, Univ. Coll.; and Dahlia Whitbourne, Royal Free.

*Surgery.*—F. Appleton, Manchester; A. K. Basilios, Birmingham; O. H. Bellerby, St. Bart.'s; C. R. Birnie, King's Coll.; J. L. Blonstein, Univ. Coll.; Mabel C. Booysen, Charing Cross; J. D. Borham, Middlesex; J. W. Bottoms, London; G. J. O. Bridgeman, St. George's; A. H. Brockbank, Guy's; A. Burlingham, Univ. Coll.; R. H. Burns, London; C. H. Burridge, St. Thomas's; R. D. W. Butler, Birmingham; Enid Clarke, Royal Free; R. G. Cooke, Liverpool; R. A. P. Corkery, St. Bart.'s; R. F. Corlett, Liverpool; D. H. Couch, Guy's; G. H. Crisp, St. Bart.'s; C. R. Croft, St. Thomas's; T. L. Davies, London; D. A. Dewhirst, St. Bart.'s; Jean M. Dollar, Royal Free; A. G. Eddison, Univ. Coll.; G. Edwards, St. George's; G. O. Edwards, St. Thomas's; R. G. Flower and Elsie G. M. Ford, Leeds; E. J. Greenwood, Guy's; K. A. Hamilton, St. Bart.'s; T. J. Hargest, Cardiff; H. J. Heathcote and T. H. Hobbes, St. Bart.'s; E. G. Howe, St. Thomas's; J. H. Humphris, St. Bart.'s; D. H. Isaac, Cardiff; P. B. Jackson, Middlesex; R. Jarman, Guy's; B. O. Jennings, Birmingham; N. M. Jerram, St. Thomas's; J. P. Jones, St. Mary's; J. Joseph, Middlesex; R. Kahn, London; Eileen M. King, Univ. Coll.; A. E. Kingston, Middlesex; F. E. Kingston, London; W. Leslie and D. Lurie, Guy's; A. L. S. McClosky, St. Mary's; Mary A. C. MacHugh, King's Coll.; S. M. Mallick, C. W. Marshall, and J. N. Martin, Guy's; W. N. Mascall, St. Thomas's; A. J. M. Melly, St. Bart.'s; D. P. Mitra, Charing Cross; J. W. Monro and A. W. J. Morgan, London; J. Morris, St. Thomas's; T. W. Morris, Liverpool; T. C. Mort, Cardiff; B. E. T. Mosse, St. Bart.'s; C. E. H. Moykopf, Guy's; M. Murad, B. L. S. *Murtagh,* A. V. Neale, and R. Nicklin, Birmingham; H. P. O'Keeffe, London; M. N. Oster, Westminster; Marion G. Palmer, Univ. Coll.; I. M. Preston, Manchester; M. E. D. Roberts, Birmingham; E. Robinson and E. H. Roche, Guy's; F. C. Roles, St. Bart.'s; Doris M. F. Russell, Royal Free; H. W. Sadler, St. George's; W. E. Savage, Manchester; M. Sendak, St. Mary's; F. C. Simpson and H. Sissons, Manchester; H. M. Soar, Charing Cross; Dorothy E. Stewart, Royal Free; Ma May Su, Leeds; H. Syed and J. W. de W. G. Thornton, King's Coll.; H. B. Trumper, Birmingham; F. B. Turner, London; G. F. Vincent, St. Thomas's; S. D. H. D. Wallis, Guy's; T. H. Wohlburg, St. Bart.'s; and A. G. Welker, Westminster.

*Midwifery.*—Gertrude Alphonso, Royal Free; M. I. Ashmaw, St. Thomas's; R. Bandyopadhyay, Calcutta; M. L. Behl, London; O. H. Bellerby, St. Bart.'s; P. G. Bentlif, Middlesex; P. Berry and L. R. B. Birt, Guy's; N. Bissada, Manchester; A. D. Blackwell, Middlesex; B. Blaxill, St. Thomas's; W. Blood, London; E. J. C. Bockett, King's Coll.; Kathleen M. Bowman-Manifold, Royal Free; H. Bown, Sheffield; G. H. Brown, Liverpool; A. H. Bruce, *Guy's; Catherine F. Cameron, Royal Free;* P. J. L. Capon, St. Thomas's; Rose A. Carter, Royal Free; Constance M. Corbett, Westminster; R. A. P. Corkery, St. Bart.'s; R. F. Corlett, Liverpool; N. Cox, Manchester; C. R. Croft, St. Thomas's; P. C. Datta, Calcutta; T. L. Davies, London; Daphne W. Dear, King's Coll.; D. A. Dewhirst, St. Bart.'s; C. H. Dhala, London; Jean M. Dollar, Royal Free; J. Ellison, Leeds; M. M. El Mishad, Guy's; M. Escovar-Frias, London; S. H. Evans, Sheffield; J. C. Gent and B. W. Goldstone, St. Mary's; E. J. Greenwood, Guy's; Linnie A. Hamar, Charing Cross; Margaret A. Harrison, Royal Free; E. Heard, Manchester; G. R. N. Henry and C. W. Hope-Gill, St. Thomas's; Isabelle R. Humphreys-Owen, King's Coll.; T. C. Hunt and T. W. Hunt, St. Mary's; M. K. Hussein, St. Bart.'s; S. G. Irlam, London; Margaret N. Jackson, Charing Cross; R. Jarman, Guy's; D. M. Johnson, St. Bart.'s; J. D. F. Johnston, Univ. Coll.; E. D. Jones, St. Bart.'s; H. I. Jones, St. Mary's; W. B. R. Jones, St. Thomas's; R. Kahn, London; B. Kaplan, Guy's; Gladys Kay, Royal Free; J. C. T. Keddie, Manchester; Eileen M. King, Univ. Coll.; A. E. Kingston, Middlesex; G. T. Krajewski, Univ. Coll.; H. W. Lewis-Phillipps and D. Lurie, Guy's; A. L. S. McClosky, St. Mary's; R. M. Maher, Liverpool; Beryl Mappin, St. Mary's; Florence I. J. Masterman, Royal Free; E. R. Matthews, St. Mary's; M. N. Menon, Guy's; Barbara H. Mitchell, Royal Free; H. W. Morck, Durham; E. W. Morgan, St. Bart.'s; J. Morris, St. Thomas's; B. G. S. Mudali, Madras; B. L. S. Murtagh and A. V. Neale, Birmingham; C. S. Netscher, St. Mary's; Evelyn M. Pakeman, Royal Free; Marion G. Palmer, Univ. Coll.; M. D. Patel, Guy's; A. J. Patil and D. Perkoff, London; H. A. Pim, St. Thomas's; Muriel F. Prout, Royal Free; E. J. Pye-Smith and W. D. B. Read, Guy's; W. H. G. Reed, King's Coll.; Violet M. H. Rendall, St. Mary's; L. A. Richardson, St. Thomas's; M. E. D. Roberts, Birmingham; M. Roberts, Liverpool; R. Roderick, St. Bart.'s; Doris Russell, Royal Free; N. A. Saif and A. A. Y. M. Salama, St. Thomas's; W. Samarasinghe, Middlesex; G. C. Shepherd, Charing Cross; D. P. Simpson, St. Bart.'s; J. W. Simpson, Manchester; B. D. Sindhwani, Durham; Peggie P. Slater, Westminster; I. Slofski, St. Mary's; H. M. Soar, Charing Cross; A. W. Spence, St. Bart.'s; W. H. B. Spoor, St. Thomas's; S. Le R. Switzer, London; B. C. Tate, Birmingham; R. H. Tootill, Manchester; E. M. Town-Jones, Leeds; H. B. Trumper, Birmingham; Winifred M. Turner, Royal Free; Aimee A. L. Vaillant, Liverpool; G. F. Vincent, St. Thomas's; E. F. C. Wadge, King's Coll.; Betty C. Waters, St. Mary's; D. F. Whitaker, Univ. Coll.; Dahlia Whitbourne, Royal Free; Rosa S. Wordsworth, Charing Cross; and R. E. Yule, St. Thomas's.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, ROYAL COLLEGE OF SURGEONS OF EDINBURGH, AND ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—The following candidates have passed the Triple Qualification Examination:—

FINAL EXAMINATION.

John L. Dearberg, Netiamvettil Karumakara Menon, Marian E. Owen-Morris, James K. Steel, *Charles* K. Dowson, Isaac Chesser, Kim Seng Lum, James W. Wylie, William M'Kim, George C. Bergman, Marvel D. Beem, Leonard Barber, Eric D. T. Smith, Alexander Rankin, Robert H. M'Kinnon, Nicandro Valerio, John B. Panton, William T. Baker, Mikhail Younkim, John J. Gilchrist, Sittampalam Thiagarajah, David Dorairaju Nevins Selvadurai, Mela Ram Soni, Douglas B. Cruickshank, Charles J. G. Hunter, William E. Williams, and Asit Chandra Bagchi.

*Medicine.*—Gwendoline R. Andrews, Carapiet Aviet Basil, Surendra Nath Chatterjee, John L. Clark, Wellwattage Liveris Perera Dassanayake, Basil J. Hallion, Samuel A. Hunt, Frederick T. Shadforth, and Thomas A. P. Wynter.

*Surgery.*—William B. Anderson, Basil J. Hallion, David Isaacs, George M. Johnson, Joseph Margolyes, John P. T. Mills, Kenneth R. Scott, Vethanayagam Daniel Seevaratnam, Joseph B. Stromier, Ellis Stungo, Colin H. Wickremesinghe.

*Midwifery.*—William B. Anderson, Gwendoline R. Andrews, Wellwattage Liveris Perera Dassanayake, Harry Ellison, Samuel A. Hunt, George M. Johnson, Tarabai Kalarkar, John Lees, Jemina M. M'Kendrick, William Robinson, William B. Russell, Arleigh W. Scott, Kenneth R. Scott, and Ellis Stungo.

*Medical Jurisprudence.*—Amolak Singh Arora, Alexander W. M. Battersby, Oswald D. Beetham, George V. Boyle, William J. Cudahy, Norman M. Eadie, Anna N. Edward, Armitage E. F. L. Forbes, James Gilchrist, William Graham, *Bandulasena Gunawardena, John* S. T. Isbister, Marcus G. Lucas, James M'Donald M'Kendrick, Ellis Stungo, Necodimus Wijeyesekera, and Malcolm M. Wright.

HOSPITAL SATURDAY FUND.—Awards amounting to £71,503 have just been made to 234 institutions, which is about £1000 more than in 1924. The largest total—nearly £24,000—was given to special hospitals; general hospitals received nearly £10,000, and convalescent homes £6885.

ROYAL INSTITUTION.—On Tuesday next, Feb. 16th, at 5.15 P.M., Prof. J. Barcroft begins a course of four lectures at the Royal Institution on the Egg.

CHELSEA CLINICAL SOCIETY.—A meeting of this society will be held at St. George's Hospital on Tuesday, Feb. 16th, at 8.30 P.M., when Prof. Swale Vincent, Dr. E. Bellingham-Smith, and Dr. T. B. Hyslop will take part in a discussion on the Endocrines.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.—A general meeting of this society will be held at 11, Chandos-street, London, W., on Feb. 26th, at 8.30 P.M., when Sir Thomas Horder and Dr. F. W. Price will discuss Syphilis of the Heart, dealing more especially with the early signs and symptoms.

Sir Arbuthnot Lane will deliver an address entitled Is Civilisation a Failure? at the inaugural meeting of the London Clinical Society, which will be held on Thursday, Feb. 18th, at 8.45 P.M., at the London Temperance Hospital, Hampstead-road, N.W. All medical men and women are cordially invited to be present.

MEDICO-LEGAL SOCIETY.—An ordinary meeting of this society will be held at 11, Chandos-street, Cavendish-square, W., on Tuesday, Feb. 16th, at 8.30 P.M., when a paper will be read by Dr. G Halliday Sutherland, on Enlargement of the Prostate in Relation to Criminal Offences, which will be followed by a discussion. Members may introduce guests to the meeting on production of the member's private card.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society will be held at the Municipal Buildings, Glasgow, on Friday, Feb. 19th, at 2.30 P.M., when there will be a discussion on Heart Disease from the point of view of (*a*) public health administration (Dr. A. K. Chalmers), (*b*) the physician (Dr. G. A. Allan), (*c*) the school medical officer (Dr. E. T. Roberts), and (*d*) the factory surgeon (Dr. D. McKail). A paper on Experience at Bradford of the New Notification Clauses *re* Venereal Disease will be read by Dr. J. J. Buchan, and there will be a presentation by the Scottish branch of the portrait of Dr. Chalmers, president of the society, 1913–14. Members attending the meeting will be entertained at luncheon by the Lord Provost and the City Corporation of Glasgow at 1 P.M. Those intending to be present are asked to notify Dr. A. S. M. MacGregor, M.O.H., Sanitary Chambers, Glasgow, as soon as possible.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Feb. 18th, at 5 P.M., a lecture on Artificial Pneumothorax as a Means of Treating Pulmonary Tuberculosis will be given by Dr. R. A. Young at 11, Chandos-street, London, W This lecture will be open to all members of the medical profession.—On Feb. 17th, at 2 P.M., Mr. J. Swift Joly will hold a special clinical surgery demonstration at St. Peter's Hospital, at which all members of the Fellowship or holders of its general course tickets will be welcome.—From Feb. 15th onwards the Queen Mary's Hospital, Stratford, will hold a fortnight's course in general medicine and surgery; there will be demonstrations and lectures in the various departments every day from 10 A.M. till 5 P.M.—During the first fortnight in March the Royal Eye Hospital will hold a special series of clinical demonstrations every afternoon from Monday to Friday inclusive.—During the early part of March there will be a special course in bacteriology at the Westminster Hospital.—The Chelsea Hospital for Women will give a course in gynæcology in the last three weeks of March, with operations, lectures, and demonstrations, and during the last fortnight of the month at the Brompton Hospital there will be an all-day course in diseases of the chest.—From March 15th to 27th there will be a course in general medicine and surgery at the Hampstead General Hospital, to be held from 4.30 to 6 P.M. for the convenience of practitioners.—There will also be a course in tropical medicine, consisting of two sessions weekly, at the London School of Tropical Medicine, beginning on March 16th. Copies of all syllabuses of the general course programme and of the *Post-Graduate Medical Journal* may be had on application to the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

The annual general meeting of the Association will be held, by permission of the Royal Society of Medicine, at 1, Wimpole-street, on Monday, Feb. 22nd, at 5.30 P.M. The business of the meeting will be to receive the reports of the honorary secretaries and treasurer, to elect members of the council, and also to elect the honorary officers nominated by the council at a meeting on June 28th last. These officers are as follows: President, Sir Arbuthnot Lane; Chairman of the Executive Committee, Sir Thomas Horder; Hon. Treasurer, Sir William Hale-White; Hon. Secretaries, Mr. Herbert J. Paterson and Dr. Arthur J. Whiting. By an alteration of one of the by-laws each member of the Fellowship will be entitled henceforth to receive a copy of the Journal of the Fellowship.

RIVERS MEMORIAL MEDAL.—Prof. C. G. Seligman, M.D., F.R.S., has been awarded the Rivers Memorial Medal for 1925 for anthropological work done in the field. This work was in connexion with New Guinea, Ceylon, and the Sudan.

LONDON (R.F.H.) SCHOOL OF MEDICINE FOR WOMEN.—At a special meeting of the council held on Feb. 4th Lady Barrett, M.D., was elected to the honorary office of Dean of the school.

BRADFORD HOSPITAL AND CONVALESCENT FUND.—Of the £21,490 raised last year by this fund, £12,288 was subscribed by workpeople. In the last 31 years the fund has raised £313,000.

MANCHESTER CHRISTIE HOSPITAL PRIZE LECTURE. Mule-Spinners' Cancer will be the subject of the lecture to be given by Dr. Archibald Leitch in the anatomy theatre of the University of Manchester at 4.30 P.M. on Friday, Feb. 19th.

ST. MARY'S HOSPITAL, PADDINGTON: SPORTSMEN'S COTS.—Last week the Mayor of Paddington unveiled a tablet over a cot provided by the local Sportsmen's Appeal Committee, which has now endowed four beds and two cots with the proceeds of concerts and boxing tournaments.

CITY SMOKE PROBLEM.—Dr. J. S. Owens will deliver a lecture on the City Smoke Problem and the Press at 5 P.M. on Tuesday, Feb. 16th, in the hall of the Institute of Journalists, Tudor-street, London, E.C. Those who wish to be present should inform Mr. L. Gaster, 32, Victoria-street, S.W. 1

TREATMENT OF SURGICAL TUBERCULOSIS.—A course on this subject will be held at the Hôpital Maritime at Berck Plage, Pas de Calais, France, from March 20th to April 3rd inclusive. Lectures will be given in the mornings by Dr. E. Sorrel, and in the afternoons there will be clinical and laboratory work with practical experience in applying plasters and the like. Information may be had from Dr. Delahaye at the hospital.

KING'S COLLEGE HOSPITAL AS MATCH-SELLER.—Commander E. E. Moore, appeals secretary, has placed in the South London area 500 automatic match machines inscribed, "Always buy here; it helps King's College Hospital." The scheme is understood to have originated in Australia, where a large hospital is said to benefit to the extent of between £5000 and £6000 a year by the sale of matches from automatic machines.

LIVERPOOL DENTAL HOSPITAL.—At the annual meeting on Feb. 4th special attention was drawn to the Dental Aid Fund, from which grants are made towards the cost of artificial teeth, fillings, or other appliances supplied to necessitous patients. Last year patients contributed £526, and the subscription list amounted to just under £100. There was a loss of £543 on the year's working, bringing the total debit balance to £3389. This deficit would have been considerably more but for the generosity of Mr. H. L. Cohen, the chairman of the hospital.

SMALL-POX IN DERBY.—As Derby has not been free of small-pox since 1924, the Health Committee intends to ask the Ministry of Health to make regulations under the Public Health Act, 1875, with special reference to power of entry to infected dwellings, power to make house-to-house visitation in infected areas, and penalties for giving false information. The persistence of the disease is attributed to the carelessness and indifference of persons affected or of those responsible for them, to concealed cases, and to the fact that close contacts are not vaccinated. The medical officer of health has been authorised to issue a public warning about the undesirability of large gatherings of children. Isolation hospital accommodation has been taxed to the utmost, and the medical officer of health has had to obtain extra medical assistance.

INTERNATIONAL SOCIETY OF SURGERY.—A congress will be held at Rome from April 7th to 10th of this year by the International Society of Surgery, and the provisional programme has now been issued. The five subjects set down for the scientific sessions are: The Curi-Therapy of Uterine Cancer, the Treatment of Abscess of the Liver, the Surgery of Cerebral Tumours, the Surgery of the Spleen, and the End-results of Jacksonian Epilepsy. Contributions to the proceedings are promised from well-known authorities in France, Spain, Switzerland, Egypt, and this country, the absence of German and Austrian *rapporteurs* being a comment upon the political situation. The congressists will have opportunities of attending operations at the hospitals, they will be entertained by the municipality, excursions have been arranged to Tivoli and Hadrian's Villa, and the Italian members of the society will entertain their colleagues at dinner.

THE death occurred on Sunday last, Feb. 7th, at his residence in Hampstead, of Dr. Henry Rayner, formerly President of the Medico-Psychological Association, and a well-known authority on mental diseases.

VICTORIA HOSPITAL, SOUTHEND-ON-SEA.—Lord Elveden, the borough Member, has given £20,000 and 12 acres of land at Westcliff towards the erection of a new hospital. Some months ago the medical officer of health reported that the accommodation in the present hospital was "grotesquely inadequate," and that the inadequacy was due to lack of financial support. Lord Elveden has inspected many modern hospitals, and the new building is to embody their best features.

NORTH STAFFORDSHIRE INFIRMARY.—Last year the workmen of the district served by this hospital subscribed £27,000. This sum, which exceeds the amount collected from this source in the previous year by £5000, and is more than half of the total income of the hospital, was the result of an appeal for an additional annual income of £6000 to maintain the new extension which will cost £150,000. When the extension is completed it is claimed that this will be the largest hospital outside London.

DONATIONS AND BEQUESTS.—Mrs. E. Rowcroft, of Polmuir, Torquay, has intimated her decision to follow her £100,000 gift for a new Torquay hospital by an additional £13,000 to enable the hospital to start free of debt, the tenders having proved to be in excess of the sum anticipated.—Mr. Isaac Mort, Patricroft, Manchester, left on the death of his wife £500 each to the Manchester Royal Infirmary and the London Hospital, £250 to the Eccles and Patricroft Hospital, £150 to the West Ham Hospital, and £50 each to the Leicester Infirmary and the Heckmondwike Coöperative Society for the medical charities of Heckmondwike.—Mrs. Mary Wellington Elgood, Tenterden, Kent, formerly of Leicester, left £1000 to the Leicester General Infirmary.—Mr. Frederick Whitehead, Oldham, left a legacy of £1000 free of duty to the endowment fund of the Oldham Royal Infirmary.—Mr. Augustus William Summers, Clifton Down, Bristol, left £1000 to the Bristol Eye Hospital, £500 each to Müller's Orphanage, Bristol, the Blue Maids Orphanages, Bristol, and the Home for Little Boys, Kent, £250 each to the Bristol Royal Infirmary and the Bristol General Hospital.

KING EDWARD MEMORIAL HOSPITAL, BOMBAY.—This hospital was opened by the Governor of Bombay on Jan. 22nd. The building has been under construction for five years and is designed on the modern pavilion system. It will accommodate 284 patients and allows for future expansion. It consists of a central administration block, four ward pavilions, two fine theatres, an out-patient department, an ophthalmic hospital, a nurses' home, a maternity wing, a pathological department, a laundry, and servants' quarters. There is also accommodation for eight medical and surgical officers, for a matron, and 50 nurses. Attached is a medical college already completed and in working order. This contains a number of fine lecture-rooms and laboratories, and in addition a hostel to accommodate 100 students. The total cost of college and hospital, together with equipment, is 83 lakhs of rupees and the upkeep is estimated at a recurring expenditure of 6 lakhs. The novel feature of the King Edward Hospital and College is the fact that the medical and surgical work is to be carried on entirely by non-official medical men on honorary lines. No member of the I.M.S. will be on the staff. This is the first institution raised by public funds to work on these lines in India.

ULSTER HOSPITALS.—At the annual meeting of the Belfast Hospital for Diseases of the Skin Dr. S. W. Allworthy reported that skin diseases were largely on the increase, chiefly in consequence of overcrowding and unemployment. A new laboratory is to be equipped for research purposes.—It has become urgently necessary to rebuild the Belfast Hospital for Sick Children on a new site, and an endeavour is being made to raise money for the purpose. At the annual meeting it was lamented that a hospital which had held the premier position in Northern Ireland was now, in consequence of the inadequacy of the building, surpassed by others, some of which are Poor-law institutions. The minimum sum required is £80,000, but the scheme of the medical staff would involve an expenditure of £140,000, towards which only £17,000 is at present available.—The Duke of Abercorn, Governor of Northern Ireland, has opened a new cottage hospital at Coleraine, Ratheane House having been acquired and adapted. The old building has been purchased by Dr. Ranken Lyle, of Newcastle-upon-Tyne, who has given it to Ulster for a maternity hospital and child welfare centre. Prof. J. A. Lindsay, chairman of Belfast Royal Victoria Hospital, describes the new cottage hospital as "beautiful and fully up to the best modern standards." It includes a theatre, a laboratory, and an X ray room.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

### *Births and Deaths Registration.*

ON Feb. 5th Mr. TINNE presented a Bill to amend the law relating to the certification of deaths and the disposal of the dead, which was read a first time.

## HOUSE OF COMMONS.

### WEDNESDAY, FEB. 3RD.

### *Charges by Opticians to Insured Persons.*

Mr. RHYS DAVIES asked the Minister of Health whether he had received representations regarding excessive charges being made by opticians for examination and supply of glasses to insured persons as additional benefits under Section 75 of the National Health Insurance Act; and what steps he proposed to take to prevent any imposition upon the funds of approved societies and the poorest section of the community represented by insured persons.—Mr. N. CHAMBERLAIN replied: I have not received any general representations on this subject, and have at present no power to make regulations with regard to the arrangements or charges for the provision of optical appliances under schemes of additional benefits. The schemes, however, that became operative in July last, following the second valuations, contain provisions enabling an approved society to restrict the cost to its own funds in respect of appliances to such charges as are reasonable. I understand that the general question of the powers of the central department to supervise the provision of this and other additional benefits in the nature of treatment has received the consideration of the Royal Commission on National Health Insurance, whose report I am expecting shortly.

### THURSDAY, FEB. 4TH.

### *Factory Legislation.*

Mr. ROBINSON asked the Home Secretary when it was proposed to introduce the Bill consolidating and amending the Factory Acts.—Sir W. JOYNSON-HICKS replied: For the reasons which I explained in a recent speech it is not proposed to proceed with the Factory Bill during the present session, but it is the intention of the Government that the Bill shall be passed during the course of the present Parliament.

### *The Effect of Disease on Morals.*

Mr. AMMON asked the Home Secretary whether his attention had been called to the case of a youth suffering from the after-effects of encephalitis lethargica, who was recently charged at the Lambeth police-court with stealing a shilling; and would he say what provisions, medical or otherwise, were made to distinguish moral and mental defectives from ordinary criminals brought before the magistrates.—Sir W. JOYNSON-HICKS replied: Yes, Sir. My attention was first called to this case while the lad was in prison on remand, and I asked the Medical Commissioner of Prisons to attend at the court and give the magistrate a full account of the examination made by the prison doctors. The lad was released on probation, and his future welfare is receiving careful attention. With regard to the last part of the question, courts have wide powers of dealing with persons who are certifiable under the Mental Deficiency Act, but persons whose morals have been affected by the disease in question may not be certifiable either under this Act or the Lunacy Acts; and the problem raised by these cases has been engaging the attention of my right hon. friend the Minister of Health, in consultation with the Home Office.

### *Prisoners and Mental Disease.*

Mr. AMMON asked the Home Secretary whether his attention had been called to the sentence of 12 months' hard labour, passed at the Old Bailey on Jan. 19th last, on a man who was certified on medical authority to be suffering from brain trouble; whether he noted the expressed wish of the learned Recorder in passing sentence that Parliament would give judges necessary powers to send such cases to places, other than prisons, where they could get more expert treatment; and would he consider the subject with a view to introducing the necessary legislation.—Sir W. JOYNSON-HICKS replied: Yes, Sir, and I have obtained a special medical report upon the prisoner in question. Upon the information before me, I have no grounds for believing that the sentence passed upon this man was other than appropriate. As regards the Recorder's suggestion that special institutions should be provided for certain offenders who are not insane, I can only say that I will give this question most careful consideration.

### National Health Insurance Report.

Mr. RHYS DAVIES asked the Home Secretary if he was now in a position to state the approximate date upon which the report of the Royal Commission on National Health Insurance might be published.—Sir W. JOYNSON-HICKS replied: I understand it is hoped that the report will be available about the end of the present month.

### Leyton School for Defective Children.

Mr. ROBERT MORRISON asked the President of the Board of Education whether, seeing that the Board recently put considerable pressure upon the local education authority of Leyton to provide a special school for defective children, with the result that the authority had now prepared detailed estimates for providing the school, he would state for what reason the Board have now refused their sanction.—Lord E. PERCY replied: I have asked the Leyton authority to postpone this scheme until it can be considered in connexion with the programmes which I have requested authorities to submit to me, or, in any case, until I have before me the revised estimate of local authorities for the coming year, and arrangements have recently been made for a deputation from the authority to lay their case before my department.

### Milk Deficient in Fat.

Lieut.-Colonel WATTS-MORGAN asked the Minister of Health if he was aware that in the present state of the law no conviction could be secured against any milk vendor, no matter what degree of deficiency in butter-fat or excess of water might be proved to be present, if the vendor was able to produce evidence to prove that the milk was sold as it came from the cow; and if he would take steps as early as possible to secure that milk sold to the public was up to the required standard.—Mr. N. CHAMBERLAIN replied: I am aware that the law is substantially as stated. There are practical difficulties in laying down and applying any fixed standard which would be of advantage to consumers, and, as at present advised, I am not prepared to introduce legislation for that purpose.

### Smoke Abatement.

Mr. CAMPBELL asked the Minister of Health when it was proposed to introduce a Bill dealing with smoke abatement.—Mr. N. CHAMBERLAIN replied: I hope that a Bill on this subject will be introduced on an early date in another place.

### Incidence of Miners' Phthisis.

Mr. DAVID GRENFELL asked the Secretary for Mines whether he was in a position to report on the inquiries into the incidence of miners' phthisis among men engaged in rock-boring with compressed-air machines in coal mines.—Colonel LANE-FOX replied: The inquiry to which I referred in my reply to the hon. Member on July 7th, 1925, has now been completed, and supports the view that in certain rare conditions dry rock-drilling may be dangerous. Certain preventive measures have been suggested as a result of the inquiry, and the inspectors are dealing with the question of their adoption. Medical inquiry is also proceeding to ascertain whether the disease has, in fact, been caused in the places where dangerous conditions have been found.

### Physical and Mental Disability among Air Force Recruits.

Mr. HORE-BELISHA asked the Secretary of State for Air what percentage of new recruits for the Royal Air Force were discharged on account of some physical or mental disability in 1925 within 12 months of their acceptance.—Sir S. HOARE replied: Less than 1 per cent. of recruits were discharged for the cause stated during 1925.

### Dental Treatment of School Children.

Mr. RENNIE SMITH asked the President of the Board of Education whether, in obedience to Circ. 1371 and Mem. 41, the estimate drawn up by the local education authority of Berkshire for dental treatment of children, in consultation with the Board's medical officers, had now been dropped.—Lord E. PERCY replied: The Berkshire authority have submitted revised estimates for 1926–27 showing a reduction in respect of special services, as compared with their previous estimate, but I have received no communication from them indicating that this reduction is due wholly or in part to a postponement of their scheme for dental treatment.

### Physical Deficiency in Naval Recruits.

Mr. HORE-BELISHA asked the First Lord of the Admiralty how many boys and men respectively were accepted in the year 1925 for His Majesty's Navy; how many were rejected on account of some physical deficiency; and what were the corresponding percentages of rejections to acceptances in the years 1910, 1911, 1912, and 1923.—Mr. DAVIDSON (Parliamentary Secretary to the Admiralty) replied: The total boys and men entered in the Royal Navy and Royal Marines during the year 1925 was 1002 and 2970 respectively—i.e., 13 per cent. of those applying. The total number of men and boys "failed" by medical officers during this period was 1753; separate figures for men and boys are not available, and there are no records of the number rejected by recruiters for physical defects. Comparative figures of rejections for the years 1910 and 1911 are not available. During the year 1912–13, of those examined by medical officers (men and boys), 26·20 per cent. were rejected, and acceptances were 30·23 per cent. of total number of applicants. During the year 1923–24, of those examined by medical officers (men and boys), 30·47 per cent. were rejected, and acceptances were 14·83 per cent. of the total number of applicants.

## MONDAY, FEB. 8TH.

### Venereal Disease in Bombay.

Mr. JOHNSTON asked the Under Secretary of State for India whether he was aware that in the Kamatipura district of Bombay there were hundreds of women kept in iron cage houses for prostitution purposes; that the tramcars passed down the street between these cages; that there were instances where from 6 to 12 women were in one room; and that the women solicited from behind the cage bars; was he further aware of the growth of venereal disease in Bombay; and what steps, if any, it was proposed to take in the matter.—Earl WINTERTON replied: I am aware that the horrible practice referred to by the hon. Member in the first part of his question is, unfortunately, too common in the East, though I do not believe it ever reached in Bombay City or elsewhere in British India such a pitch of degradation as the question alleges. The Bombay Government, within whose competence the matter is, passed a law two years ago which should make it far easier to deal with the worst scandals of organised prostitution.

### Driving by the Physically and Mentally Unfit.

Colonel DAY asked the Minister of Transport whether, in view of the fact that there had lately been numerous summonses brought against deaf, dumb, or maimed drivers who, owing to their physical defects, could not observe the rules and regulations of the road for their own or other people's safety, he would introduce legislation or take steps to prevent licences being issued to people who were not entirely physically and mentally fit.—Colonel W. ASHLEY replied: I have the general question of the issue of driving licences to persons suffering from physical disabilities under consideration in connexion with the Bill for better regulation of road vehicles referred to in the Gracious Speech from the Throne.

### Medical Director at Colonial Office.

Mr. RAMSDEN asked the Secretary of State for the Colonies whether it had now been decided to appoint a medical director in the Colonial Office to act as a liaison officer between the Crown Colonies and the Civil Research Committee, and as adviser to him on medical matters.—Mr. ORMSBY-GORE (Under Secretary for the Colonies) replied: The Secretary of State hopes shortly to be able to make a definite announcement regarding the appointment of a medical adviser in the Colonial Office.

### Unhealthy Conditions in Bombay Cotton Mills.

Mr. SCURR asked the Under Secretary of State for India whether he was aware of the unhealthy atmospheric conditions prevalent in the cotton mills of Bombay; and what action the Government of India proposed to take to remedy this defect.—Earl WINTERTON replied: The section of the Factory Report of the Bombay Presidency for 1924 dealing with the subject records some advance in dealing with the problem of atmospheric conditions. The Government of India instituted an inquiry by an expert investigator in 1921; his report was presented in 1923 and has been published. The Government of India subsequently consulted local governments on a number of suggestions for improving the conditions.

### Registration of Nursing Homes.

Mr. GERALD HURST asked the Minister of Health whether he intended this session to appoint a committee to inquire into the desirability of legislation with regard to the registration of nursing homes; and, if so, what type of committee would be set up.—Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) replied: In accordance with the undertaking given by my hon. and gallant friend, the Parliamentary Under Secretary for Health for Scotland, on June 10th last, steps are being taken for the appointment of a Select Committee to inquire into this question.

### Compensation under Tuberculosis Order.

Brigadier-General CLIFTON BROWN asked the Minister of Agriculture how much compensation money had been paid to farmers under the Tuberculosis Order of 1925; and how many cattle had been destroyed for tubercle under this Act.—Mr. GUINNESS replied: The Tuberculosis Order came into force on Sept. 1st last, and the returns of animals slaughtered under orders from the local authorities up to the end of the year 1925 have only partially been received. It is estimated that during the five months ending about 8000 cows will have been slaughtered, on which about £38,000 will have been paid in compensation.

### *Case of Filaria in India.*

Mr. SCURR asked the Under Secretary of State for India whether he was aware that Narenda N. Bandopadhyaya, a political prisoner, interned last October under the Bengal Ordinance, was now seriously ill with filaria; that he was unable to walk as a result; that the disease had been contracted in gaol; and whether the Government would, in view of these facts, consent to his release on compassionate grounds.—Earl WINTERTON replied: I have not received any information about this detenu's health. But the Bengal Government will certainly have considered all the facts.

## TUESDAY, FEB. 9TH.

### UNQUALIFIED MEDICAL PRACTICE.

Dr. LITTLE called attention to the spread of unqualified practice in medicine and surgery by osteopaths, chiropractors, and other irregular practitioners; and moved "That, in the opinion of this House, an authoritative inquiry with the object of making recommendations to Parliament for dealing with the whole position of irregular practice in medicine and surgery, is urgently necessary." He said that the spread of unqualified medical practice was a fact that must be admitted. The reasons were many, but perhaps the most important was the length of the medical curriculum. It was not true, as was sometimes represented, that British medicine was a system of knowledge confined to the British Islands and the British Empire; it was partly international medicine. It had one distinction—namely, that its students were taught with the patient always in view. Another important quality of international medicine was that any discovery made by one individual was immediately made known to the rest of the world. The note of unqualified practice was secrecy of the methods employed. Osteopaths were most in the public eye at present and were in many respects very different from other groups of unqualified medical practitioners. In the first place, they claimed to be as fully trained in medicine and surgery as were the ordinary students in our medical schools. But nine-tenths of their training was received in the United States. Their system was based on a formula or theory propounded 50 years ago by an obscure medical practitioner in one of the small towns in the Western States of America. That theory had been examined and had been rejected by international medicine and nowhere more thoroughly than in the United States. It had become necessary to grade the foreign colleges from which students came who applied for the right to practise in this country and three grades had been instituted—A, B, and C. Applicants from colleges in Grade A were allowed to sit for an examination set by the licensing body of this country without having done any of the preliminary subjects of medicine or surgery. That fact disposed of the allegation that the medical profession was a very close trade-union which refused to admit any outsiders.

An emphatic rejection of the claims of the osteopaths was that they were not allowed to obtain commissions in the naval and military services of the United States. The osteopaths held that the treatment for ills was the manipulation of the bone structure of the body, and the theory that all disease arose in the spine and might be helped by manipulating the spine was the basis of osteopathy. The five great scourges of the modern world were tubercle, syphilis, malaria, cancer, and insanity. Three out of five of these diseases were regarded by all the world, except perhaps the osteopaths, as being due to bacterial effects. One could see the bacteria which caused these diseases under the microscope. In the case of cancer all the modern work pointed to a bacteriological form, direct or indirect, and a very large number of cases of insanity were unquestionably due to bacteriological effects. In the case of tubercle the damage was greatly increased by the manipulation of tuberculous joints.

With regard to the position of the medical profession in regard to osteopathy, he would liken the profession to the position of a generous and wise wife in a happy marriage. He pictured the husband as the public, and osteopathy as a flighty young flapper of superficial attraction. He understood that the expression "giving the glad eye" had now been raised to the status of a Parliamentary expression by use among the front benches. The "glad eye" had passed between the husband and the younger lady. The wife at home had been not entirely oblivious to that flirtation, but had been prudent enough not to interfere with it in any way. The medical profession was not unduly concerned, and it was not from their point of view that the House ought to approach the subject. It was not the rich, but the poor, who suffered most from this practice. No one could have held, as he had, for nearly 30 years, the position of a hospital physician without being really saddened by the cases that one saw of the terrible neglect of the poor from the point of view of the unqualified medical treatment. He referred to the dispensing chemists, the optician who pretended to be an oculist, and the dentist who was a quack and who fitted new plates upon horrible septic stumps which were poisoning the whole system. No robbery was worse than the robbery of unqualified practice. No spoliation of the poor was more horrible than that. It would astonish the House to learn that, with the exception of England, Germany, and five of the Australian States, practically all the countries of the civilised world penalised unqualified practice. For that reason he asked for an inquiry, which would allow this country to reconsider its standpoint on this matter compared with the rest of the world.

Mr. HILTON YOUNG, who seconded, said that as a matter of public interest they must all feel that the medical and surgical professions were the front line in the trenches in the great war against disease. No effort on their part should be wasted which would tend to the maintenance, discipline, and efficiency of that army.

Mr. ATKINSON said he was unable to accept the resolution which condemned a body of men who were doing work of great value. He would, therefore, move an amendment to provide that the object of the inquiry should be to secure the recognition and registration of manipulative practitioners having approved qualifications. He was asking the House definitely to accept the policy of recognition by registration of persons of approved skill. The committee of inquiry could settle what the necessary qualifications should be; that ought not to be a difficult matter. In America, for example, there were seven colleges under the supervision of the American Osteopathic Association. The standard set there was high. There were hospitals and sanatoria working in America under the same supervision, and it was notorious that their work was done efficiently and well. In 1802 there was only one osteopath in the world. Now, in America, there were upwards of 8000 fully qualified, and hundreds more scattered about the world. Why had not progress been made in this country? Simply and solely because of the opposition of the medical profession. They were all familiar with the notorious case of Dr. Axham, who was hounded out of his profession because he administered chloroform for the most able manipulator. "I remember 25 years ago," continued Mr. Atkinson, "my father being a cripple. He consulted a number of doctors in vain and it appeared as if he would become a cripple for life until he went to see Mr. (now Sir H.) Barker. He was absolutely cured in a short time and he has never been ill since. But the cure involved the most excruciating pain, and in a civilised country suffering of that kind ought not to be necessary when there were such obvious means of preventing it." Why was the country to be denied the service of the osteopath. It was a branch of knowledge which did not form part of the medical curriculum. The ideal way would be for the medical profession in this country to bring it within the medical curriculum, and then persons who showed special skill in that branch of cure could specialise, and the public could have the full benefit of their knowledge.

Dr. SHIELS said he thought that Dr. Little's motion was what military men would call a sort of offensive defensive. Whether that was entirely desirable was another matter, but personally he felt that an inquiry such as the hon. gentleman desired was not necessary at the present time. At the same time he thought that some observation required to be kept on unqualified practice. He objected still more to the terms of the amendment. While the medical profession had derived advantages from the contributions of outsiders, there were definite limits to the extent to which unorthodox practice should be permitted, and that limit was the safety of the public. He thought that the bulk of the medical profession would be prepared to admit that Sir Herbert Barker had performed very considerable services as a practitioner and that he was a man of no mean skill. But Sir Herbert Barker's case was an exceptional one. After all, bone-setting formed a very small part of medicine and surgery, and a general diploma was quite impossible in a case like that. As to osteopathy, the medical profession did not object to it being practised, but they said that before any man should get a medical qualification to practise medicine or surgery on any system he ought to have a definite minimum of fundamental knowledge which was essential.

Mr. N. CHAMBERLAIN (Minister of Health) said that the House would agree that to ask this country to accept diplomas from another country, into the value of which we really could not pretend to examine and over the qualifications of which we had no control, was really not a practical proposition.

Mr. B. PETO said it was hardly accurate to say that he and his friends were asking for American osteopathic degrees to be recognised in this country. The British Osteopathic Association wanted to set up their own college and their own course of training and their own degrees for British subjects, and not to have importations from America.

Mr. Chamberlain said there was no reason why any properly qualified medical man in this country to-day should not specialise, if he liked, in osteopathy. As a matter of fact, some of the most celebrated medical men in this country had done so. Nor was there any reason why the osteopaths should not set up their own colleges; he knew of no reason to stop them. That was the only way, he thought, to achieve what they wanted. If they wanted to have a register of osteopaths in this country let them set up their own colleges, give their own diplomas, and then they would be forced to do what had been done in America. Their curriculum would gradually have to conform to something that would approach to the normal curriculum in this country. He could not vote either for the motion or for the amendment. He did not think it was necessary to prohibit, and he did not think public opinion would be in favour of prohibiting unqualified practice. But the proposals of the amendment seemed impossible to defend, and, on the whole, he thought the House would do best to leave things to develop in the normal, ordinary way.

Colonel Sinclair, who said he was the only member of the General Medical Council in the House, was speaking when the motion was "talked out" at 11 o'clock.

### *Birth Control.*

Mr. Thurtle asked leave to present a Bill to authorise local authorities to incur expenditure, when deemed expedient, in conveying knowledge of birth control methods to married women who desired it. He said that the broad purpose of the measure was to make known to very poor women information which would enable them to restrict their families, such as was at present utilised by wealthier women. Year after year the falling off in the birth-rate became more and more marked in the upper and middle classes, while among the poorer people it was almost stationary. In Westminster the birth-rate was 11·2 per 1000; in Shoreditch 25 per 1000, and in Chelsea 11·3 per 1000. In districts where overcrowding was most rampant and poverty most acute there was a very high birth-rate. The Bill would throw no charge on the national Exchequer and was merely permissive. We were expending money in broadcasting information about sanitation, personal hygiene, diet, tuberculosis, and venereal disease, solely on the grounds of maintaining public health, and there was not a phase in that work that was not rendered more difficult by the fact that in the poorest districts women were having larger families than were good, either for themselves or for the State.

The Rev. J. Barr opposed the introduction of the Bill. He said that in questions like this moral instincts and religious prejudices were as good a guide as conscience itself. If they were defied or ignored it would be at our own peril, and the peril of the State.

Leave to bring in the Bill was refused by 107 votes to 81.

### *Unqualified Optical Specialists.*

Mr. Briant asked the Home Secretary if he would consider the introduction of a Bill to prevent unqualified persons posing as optical specialists.—Sir Kingsley Wood replied: In view of other commitments my right hon. friend is not able to consider the introduction of legislation on this subject.

### *Effects of Stone Dust in Mines.*

Mr. Charles Edwards asked the Secretary for Mines whether he was aware of the number of men in mines suffering from the effects of stone dust; whether he was aware that medical men were certifying this disease and that the numbers were rapidly increasing; whether he had seen the comments of a high court judge on this matter, who spoke of the necessity of scheduling this disease; and whether his department was taking any steps to ascertain the facts in regard to this, with a view to inclusion in the schedule for compensation purposes.—Colonel Lane-Fox replied: On the general question I would refer to my reply on Feb. 4th. It should be emphasised that it is in rare and exceptional cases of dry drilling in siliceous rock that men are exposed to danger, and I have at present no evidence that the number of men affected is increasing. The judicial comments to which the hon. Member refers have not been brought to my notice, but he may rest assured that I am keeping my right hon. friend, the Home Secretary, in close touch with the results of my investigations.

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The fiftieth birthday of the Association pour l'Avancement des Sciences will be celebrated at a congress to be held at Lyons this year. From July 24th to August 1st there will be an international exhibition of "all that relates to applied science."

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Monday, Feb. 15th.—4.30 P.M., General Meeting of Fellows. Special Discussion on Focal Sepsis as a Factor in Disease.

Tuesday.—5.30 P.M., General Meeting of Fellows. 5 P.M., Therapeutics and Pharmacology. Laboratory Meeting at Guy's Hospital. Prof. C. S. Gibson and Mr. H. Burton: The Trypanocidal Action of some New Organic Arsenic Compounds. Prof. A. L. Gibson and Prof. C. S. Gibson: Demonstration of Hortvet's Apparatus for Cryoscopic Determination. Dr. E. P. Poulton: Demonstration of a New Method of Administering Oxygen. Mr. J. H. Ryffel, Mr. A. A. Osman, and Mr. W. W. Payne: Prophylactic Use of Alkalis in Anuria. 8.30 P.M., Pathology.

Wednesday.—5 P.M., History of Medicine. Mr. E. Muirhead Little: Glisson as an Orthopædic Surgeon. Colonel W. P. MacArthur: Some Notes on Old-time Leprosy; the Case of King Robert the Bruce.

Thursday.—5 P.M., Dermatology. (Cases at 4 P.M.). Dr. H. W. Barber: Dermatitis Scrofulosa. Dr. M. S. Thomson: Syringo-Cyst Adenomata. Dr. E. G. Ffrench: Lupus Erythematosus.

Friday.—8.30 P.M., Electro-Therapeutics. Dr. E. P. Cumberbatch: Experiences on a Tour of Physiotherapy Clinics in America.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, W.

Monday, Feb. 15th.—9 P.M., Dr. E. Farquhar Buzzard: Principles of Treatment in Relation to Diseases of the Nervous System. (First Lettsomian Lecture.)

MEDICO-LEGAL SOCIETY, 11, Chandos-street, W.

Tuesday, Feb. 16th.—8.30 P.M., Dr. G. Halliday Sutherland: The Enlargement of the Prostate in Relation to Criminal Offences. To be followed by a discussion.

CHELSEA CLINICAL SOCIETY, St. George's Hospital.

Tuesday, Feb. 16th.—8.30 P.M., Discussion on Endocrines. Speakers: Prof. Swale Vincent, Dr. E. Bellingham-Smith, and Dr. T. B. Hyslop.

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

Thursday, Feb. 18th.—8.15 P.M., Dr. Patrick A. Buxton (Milner Research Fellow with the New Zealand Government): The Depopulation of the New Hebrides and other Melanesian Islands.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

Monday, Feb. 15th.—5 P.M., Mr. Stanford Cade: Cholecystography.

Wednesday.—5 P.M., Dr. Alfred Piney: The Importance of Hæmatology in Surgery.

Friday.—5 P.M., Dr. Piney (lecture concluded).

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.

Monday, Feb. 15th, to Saturday, Feb. 20th.—Fellowship of Medicine lectures, Medical Society, 11, Chandos-street, W. Thursday, 5 P.M., Dr. R. A. Young: Artificial Pneumothorax as a Means of Treating Pulmonary Tuberculosis. Wednesday, 2 P.M., Special Clinical Surgery Demonstration at St. Peter's by Mr. Swift Joly. Open to Fellowship members and ticket holders only.—Queen Mary's Hospital, Stratford, E. Special Post-graduate Course in General Medicine and Surgery. Sessions daily from 10 A.M. till 5 P.M., Operations, Demonstrations, Lectures.—London Lock Hospital, Dean-street, W. Clinical Course. Instruction daily in the O.P. Department.—Combined Children's Course, Paddington Green Hospital, Victoria Hospital (Tite-street, Chelsea), and the Children's Clinic, Conway-street, N.W. Morning and afternoon sessions daily.—London Temperance Hospital, Hampstead-road, N.W. 4.30 to 6 P.M., Special Course for General Practitioners. Further information from the Secretary of the Fellowship of Medicine.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

Thursday, Feb. 18th.—4.15 P.M., Dr. Charles Singer: The History of Rickets (third of four lantern lectures, open to medical students of the University of London).

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester-square, W.C.

Tuesday, Feb. 16th.—5 P.M., Dr. J. H. Sequeira: Tuberculosis Cutis (I.).

Thursday.—5 P.M., Dr. Ingram: Pathological Demonstration.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Monday, Feb. 15th.—10 a.m., Surgical Out-patients: Mr. W. E. Tanner. 10.30 a.m., Gynæcological Operations: Mr. A. E. Giles: Throat, Nose, and Ear Operations: Mr. W. Ibbotson. 2 p.m., Medical, Surgical, and Gynæcological Clinics, Operations. 6.30 p.m., Venereal Department.

Tuesday.—2 p.m., Medical, Surgical, Throat, Nose, and Ear Clinics, Operations. 4.30 p.m., Mr. N. Fleming: Corneal Conditions.

Wednesday.—10.30 a.m., Surgical Operations: Mr. E. Gillespie. 2 p.m., Medical, Eye, and Skin Clinics, Operations. 5.30 p.m., Venereal Department.

Thursday.—10.30 a.m., Dental Out-patients: Mr. E. S. Pierrepont. 2 p.m., Medical, Surgical, and Throat, Nose and Ear Clinics, Operations. 5 p.m., Operations.

Friday.—10.30 a.m., Eye Operations: Mr. N. Fleming. 2 p.m., Surgical, Medical, and Children Clinics, Operations. 3 p.m., Gynæcological Clinic. 6.30 p.m., Venereal Department.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: February–March, 1926.

Clinical Lectures and Demonstrations.

Monday, Feb. 15th.—2 p.m., Out-patient Clinic: Dr. Hinds Howell. 3.30 p.m., The Aural Causes of Vertigo: Mr. Just.

Tuesday, Feb. 16th.—2 p.m., Out-patient Clinic: Dr. Walshe. 3.30 p.m., Cranio-cerebral Topography: Mr. Armour.

Thursday, Feb. 18th.—2 p.m., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 p.m., Testing the Eighth Nerve: Mr. Just.

Friday, Feb. 19th.—2 p.m., Out-patient Clinic: Dr. Adie. 3.30 p.m., Surgery of the Spinal Cord: Mr. Sargent.

The fee for the Course, including Pathology Lectures, is *£5 5s.* *For those who hold Perpetual Tickets the fee is £3 3s.*

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 a.m., or at such other times as may be announced.

Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.

Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

J. G. Greenfield, Dean of Medical School.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.

Wednesday, Feb. 17th.—Dr. Harrison: Tests of Hepatic Efficiency.

Thursday.—4 p.m., Dr. Shires: X ray Diagnosis of Diseases of the Chest.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone-road, N.W.

Thursday, Feb. 18th.—5 p.m., Mr. C. S. Lane-Roberts: Ectopic Pregnancy.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.

Wednesday, Feb 17th.—5.30 p.m, Mr. E. H. Drinkwater: Some Conditions Influencing the Choice of Anæsthetic.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.

Friday, Feb. 19th.—4 p.m., Dr. Nicol Rankin: Purulent Rhinitis.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

Friday, Feb. 19th.—3.30 p.m. (at the Royal Hospital), Dr. Grout: Radiological Examination of Gastro-Intestinal Disease.

## Appointments.

**Lack, V. J.**, M.B., B.S., F R.C.S. Edin., has been appointed Assistant Obstetric and Gynæcological Surgeon to the London Hospital.

**Melville, Mary Ashcroft Jessie**, M.B., Ch.B. Glasg., House Surgeon, Victoria Hospital, Keighley.

**Roberts, T. E.**, M.B , B S. Lond., D.P.H., School Medical Officer for Portsmouth.

**Tylecote, F. E.**, M.D., D.P.H. Vict., F.R.C.P. Lond., Honorary Physician to the Manchester Royal Infirmary.

**Viner, Geoffrey**, M.D. Lond., F.R.C.S. Eng., Honorary Consulting Ophthalmic Surgeon to the Watford and District Peace Memorial Hospital.

## Vacancies.

*For further information refer to the advertisement columns.*

*Birmingham General Hospital.*—Part-time Clin. Asst. in Ven. Dept. £350.

*Birmingham, Queen's Hospital.*—Third P. for Out-patients. £50.

*Bradford City.*—Asst. Bacteriologist. £600.

*Brighton, New Sussex Hospital, Windlesham-road.*—H.S. At rate of £50.

*Bristol General Hospital.*—Two H.P.'s., two H.S., Res. Obstet. O. and Cas. H.S. All at rate of £80.

*Bristol Royal Infirmary.*—Hon. S.

*Canterbury, Kent County Mental Hospital, Chartham.*—Jun. Fourth Asst. M.O. and Pathologist. £300.

*City of London Hospital for Dis. of the Heart and Lungs, Victoria Park, E.*—H.P. At rate of £100.

*Derby, County Mental Hospital, Mickleover.*—Jun. Asst. M.O. £400.

*Exeter, Royal Devon and Exeter Hospital.*—Res. Cas. O. At rate of £100.

*Hampstead General and North-West London Hospital, Haverstock-hill, N.W.*—H.P. Also Cas. M.O. Each at rate of £100.

*Highgate Hospital, Dartmouth Park Hill, N.*—Sen. Asst. Med. Supt. £400.

*Holloway Sanatorium, Virginia Water, Surrey.*—Med Supt. £1000.

*Hospital for Consumption and Dis. of Chest, Brompton, S.W.*—Anæsthetist.

*Hyde Borough.*—M.O.H. £800-50-1000, plus travelling expenses.

*Johannesburg, S. African Institute for Medical Research.*—Pathologists. £1200, £1000, and £600 respectively.

*Leeds Public Dispensary.*—Sen. Res. M.O. £200.

*Leicester Royal Infirmary.*—H.S. At rate of £125.

*London County Council.*—Sen. M.O. £1219 12s.

*London Hospital, E.*—Vacancy on Hon. Surg. Staff.

*Manchester, Ancoats Hospital.*—Res. M.O. Also H.S. At rate of £150 and £100 respectively.

*Manchester, St. Mary's Hospitals.*—Res. Obstet. O. and Res. Surg. O. Each £200.

*Northampton General Hospital.*—H.P. and H.S. Each at rate of £150.

*Norwich, Norfolk and Norwich Hospital.*—H.S. £120.

*Royal Chest Hospital, City-road, E.C.*—S.

*Royal College of Surgeons of England.*—Election to Court of Examiners.

*Royal Free Hospital, Gray's Inn-road, W.C.*—Second Asst. to Venereal Diseases Clinic.

*St. Mark's Hospital for Cancer, Fistula, &c., City-road, E.C.*—H.S. at rate of £200.

*Saint Pancras Dispensary, 39, Oakley-square, N.W.*—Res. M.O. £175.

*St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.*—H.S. At rate of £75.

*Salford Royal Hospital.*—Radiologist. £300.

*Samaritan Free Hospital for Women, Marylebone road, N.W.*—H.S. At rate of £100.

*Shrewsbury, Royal Salop Infirmary.*—H.P. £160.

*Stoke-on-Trent, North Staffordshire Royal Infirmary, Hartshill.*—Asst. Hon. S.

*University College Hospital, Dental Dept., Great Portland-street, W.* Hon. Anæsthetist.

*West Bromwich and District Hospital.*—Res. H.S. £220.

*West End Hospital for Nervous Diseases, Gloucester Gate, Regent's Park, N.W.*—Sen. H.P. At rate of £150.

*West London Hospital, Hammersmith. W.*—Asst. Path. £350. H.P. and two H.S.'s. Each at rate of £200.

*York County Hospital.*—H.S. £150. Also H.S. for Eye, Ear, and Throat Dept. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces the following vacant appointments for Certifying Factory Surgeons: Alston, Cumberland: Cerrig-y-Druidion, Denbighshire; Haslemere, Surrey: Sherburn, Yorks, E. Riding.

## Births, Marriages, and Deaths.

### BIRTHS.

**Gebbie.**—*At Boston Bank, Hyde*, Cheshire, on 7th inst, to Dr. and Mrs. N. Gebbie—a daughter.

### MARRIAGES.

**Phelan—MacDonald.**—On Feb. 6th, at South Kensington, Major E. C. Phelan, D.S.O., *M.C.*, R.A.M.C, to Mrs. MacDonald, widow of Ian MacDonald, Highfield, Southampton.

### DEATHS.

**Bateson.**—On Feb. 8th, after a short illness, at the Manor House, Merton, S.W, William Bateson, F.R.S., Director of the John Innes Horticultural Institute, Hon. Fellow of St. John's College, Cambridge, aged 64.

**Gorrie.**—On Feb. 5th, in a nursing home, following an operation Henry James Gorrie, O.B E., L.R.C.P. and S., L.D.S., Edinburgh, in his 46th year.

**Hoyle.**—On Feb. 7th, at Glenroy, Blundell avenue, Porthcawl, Dr. William Evans Hoyle, late Director, National Museum of Wales, and of Crowland, Llandaff.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## THE VOLUNTARY MENTAL PATIENT.

BY NORMAN R. PHILLIPS, M.D BRUX.,
SENIOR ASSISTANT MEDICAL OFFICER, ST. ANDREW'S HOSPITAL FOR MENTAL DISEASES, NORTHAMPTON.

THE Royal Commission on Lunacy and Mental Disorder has now for some time been conducting its inquiries. It is clear, from the evidence made public, that the dissatisfied element has been given a fair hearing. It is to be hoped that equal consideration has been given to the more modest and retiring type of patient who shuns publicity and who is frequently grateful for the treatment he receives. That there are two sides to every question is no less true of the mentally afflicted. In these days it would be difficult to imagine any large collection of men or women which did not include a certain element of unrest, and it would be strange indeed not to find it in our hospitals for the insane. The only difference between the sane and the insane agitator is one of degree. Up to a certain point the agitator is tolerated by society. As soon, however, as he becomes dangerous to himself or others he is liable to be placed in an asylum. Many of these cases originally suffered from delusions of persecution and have later become persecutors themselves. Referring to this class of patient, Stoddart says: "When they find themselves sequestrated in an asylum, they are a plague to the institution. They criticise the routine, get up trumpery charges against the attendants, and write complaints against the medical officers to the Board of Control." Owing to lack of judgment they cannot understand that they are insane, and consequently they consider themselves illegally detained.

In this article I wish to draw attention to a very different type of patient from the one just mentioned. The sceptical person who visits a mental hospital expecting to find patients wrongfully detained is not only surprised at finding none, but is still more surprised when he meets with patients pleading in the most reasonable manner to be allowed to remain in the institution, and not to be given their freedom against their will. There is a definite group of patients who are never so well or free from mental trouble as when they are safely inside a mental hospital. Not a few of them have a sincere wish to be detained on a permanent basis. As far as they are concerned internment is final, it is in fact their only means of defence against themselves. In such cases the asylum—using the word in its true etymological sense—is a shelter from insanity which attacks them as soon as they are discharged. If allowed to return to society they become the inoffensive dupes of humanity. It may truly be said that liberty is the cause of their insanity, and they dread it because of their inability to adapt themselves to it. Paul Courbon gave the name of liberty psychosis (*psychose de la liberté*) to this type of insanity. "As soon as they are obliged to live an independent existence," he says, "they lose their self-control. Under the supervision of a protector they retain their reason. Liberty is the principal cause of their losing their mental balance." Investigation into their previous history will demonstrate the fact that many of these individuals were always of a timid and retiring disposition, dreading any responsibility in life, deficient in initiative, and, above all, lacking in judgment. As long as they can lean on someone possessing that energy which they themselves lack, they can conduct themselves normally, but when they are deprived of this support it becomes necessary for them to seek protection in a suitable institution, otherwise they rapidly lose their reason. There is increasing evidence to show that this psychopathic condition is largely due to faulty education by narrow minded parents or guardians. After a course of treatment in a mental hospital has helped them to regain their mental balance they are so gratified that it is not uncommon for them to wish to remain indefinitely rather than run the risk of again facing the world and its trials.

### *Clinical Record*

As an example I will quote the following case which has come under my observation.

Miss A., aged 53, admitted as a voluntary boarder into St. Andrew's Hospital in April, 1923.

*Previous History.*—One of a family of eight. At age of 10 years adopted by grandparents who lived in a country vicarage. She attended school until she was 17, when they removed to another small village. Her grandmother, who was 70 years old, had very narrow views. She completely dominated her young protégée, who was not allowed to do anything that could be done for her. She had even interfered with her school lessons, and arranged for her to be put in a class with older girls who were above her standard. She was left to sit still or potter about while her guardian superintended the work in the house or garden. Any initiative she showed was discouraged, and she gradually came to distrust herself, and to feel that she was as helpless as she was ignorant. She had bouts of depression at times, and would complain of a tired feeling and of aches and pains. There is no doubt that suggestion helped largely to produce these latter symptoms. As she herself says: "I was brought up to think it interesting to be delicate. My grandmother frequently told me that she was delicate herself in her younger days, and that she considered it vulgar for young ladies to be robust." Moreover, she frequently came in contact with invalids and "nervy" people—"it was fashionable to be an invalid at X." It is difficult to imagine anyone more unfitted to fight life's battles alone. Fortunately, when her grandmother died at the age of 86, she was able to return to her mother's care, where she found a very different state of things. The other members of her family had been brought up to do something useful in the world. Her younger sister, who managed the household duties, resented the intrusion of so incapable a person, and had not the patience to teach her how to work. By arrangement she was sent to stay with different families as paying guest, and she did a little light work. She knew she could always return to her mother, which she did frequently. The friction with her sister, however, became more and more acute, and culminated in the patient leaving home for good. The shock at this final separation from her mother was too great, and within a few weeks she lost her mental balance. She came to the conclusion that she was no good to anybody and never would be, and that the best thing she could do would be to disappear. She made an ineffectual attempt to drown herself. Asked if she would go to a mental hospital for treatment, she willingly assented.

*Condition on Admission.*—Physical health good; no signs of organic nervous disease.

*Mental.*—She was depressed and morbidly apprehensive. She was solitary and retiring, and lacking in self-confidence. Referring to her recent attempt at suicide, she said: "I felt I'd proved I was incapable of fighting life's battles alone, and I wanted to take strong measures."

For a while she was treated by rest in bed and psychotherapy. Four weeks after admission she was moved to a villa in the grounds. She gradually got more self-confidence and became less depressed. She occupied herself with reading, writing, and needlework. I now suggested she might do some weeding in the garden. This she took up with increasing zeal, saying it helped her to forget herself. Occasionally she would become depressed after an interview, lest she might have to leave. She told me that the discipline and order of the hospital had the restraining influence which she lacked when out in the world. Though her garden work was at first supervised, she began to show increasing aptitude and initiative. She gradually became so reliable that for some considerable time she has practically had charge of a large garden, which now looks better cared for and more beautiful in the summer than ever before. The patient also busies herself in other ways—especially dressmaking. She enters into the games and various entertainments. For some time she has had parole, which enables her to go unaccompanied into the town and country round, and to do her own shopping. During the first year she was liable to occasional attacks of depression, but she has been free from these for some time past. She still, however, shows apprehension at any suggestion of her leaving the institution.

The above case is merely an example of the type to which I wish especially to call attention. It may not be easy to point out another case exactly similar to this one. But there are a great many which resemble it in many respects. The same timidity, want of self-assurance, and incapacity to lead an independent existence is met with in men as well as in women, in younger as well as in older individuals. The fact that the poor are as liable to be affected as the rich is in favour of extending the voluntary boarder system to our public mental hospitals. When women of this type marry they may become just as dependent on their husbands for protection as they were formerly dependent on their parents; and the loss of the husband may in like manner be responsible for a mental collapse. It must not be supposed that all patients of this class are necessarily admitted into our mental hospitals as voluntary boarders. The mental breakdown, when it does occur, may necessitate certification. Nevertheless, because of their willingness to remain and coöperate in the treatment they are potentially voluntary boarders.

### *Prophylaxis.*

The more closely one investigates the family history in such cases the more one becomes convinced that the principal ætiological factor is faulty environment. Preventive treatment, if it is to be effectual, must therefore begin in the homes and schools. It is not the child so much as the parents and school teachers who require treatment. If they are to develop normally, the child's mental faculties and natural energies must be allowed greater freedom of action instead of being stifled by vexatious interferences and unnatural restraint. Children should be brought up to face life and extract from it and themselves the best possible results. The importance of these principles has long been recognised in America by the National Committee of Mental Hygiene, and it is interesting to note that a similar society has recently been formed in this country.

### *Treatment.*

Though prophylactic measures on the lines mentioned would probably save any amount of treatment in after years, it should be borne in mind that it must of necessity take a considerable time before mental hygiene could possibly establish itself sufficiently in this country to be of any general practical value. It is our duty, therefore, to apply the best therapeutic remedies at our disposal when the patient is eventually brought to the hospital. All treatment should be directed to encouraging the patient to develop those faculties and energies which have been unduly restricted in the past, with the ultimate object of his gaining sufficient confidence to lead an independent existence. The patient may be induced to discuss his difficulties and worries, but it is obvious that, where the cause is largely environmental, little good can be expected from psycho-analysis. On the other hand, suggestion may be employed with advantage. It is most important to obtain the coöperation of the patient in the various stages of the treatment.

The case above described serves to illustrate the benefit which may be derived from occupational therapy. There is no doubt that there are greater possibilities in this method of treatment than are at present generally realised. The remedy is an old one, but of recent years it has been extended and developed as a result of the experiences of the war. The various exercises and games, &c., as well as the musical and dramatic performances arranged for our patients have undoubtedly a stimulating and beneficial effect. It is, however, claimed (and I think with reason) that the benefits to be derived from productive work are often more substantial and more enduring than those produced by the diversional activities just mentioned. In some of our private mental hospitals it is the custom to let the patient buy a plot of ground and sell the produce to the institution. The advantage of this arrangement is that it enables him to see the marketable value of his work, and this in itself promotes a spirit of initiative and self-reliance. It is a good principle to encourage and reward the patient for work done by a gradual extension of privileges. Granting "parole," which enables him to go for walks unaccompanied in the hospital grounds, and, in suitable cases, in the town and country, is as a rule much appreciated. Later this may be extended to permission to visit friends for gradually increasing periods of time. By employing such methods as these it may, in course of time, be found possible to wean the patient from hospital control.

My thanks are due to Dr. D. F. Rambaut for permission to publish the notes of the above case.

*References.*—Boyle, Helen: Brit. Med. Jour., 1925, ii., 784. Courbon, Paul: Ann. Med.-Psych., December, 1921. Haas, L. J.: Occupational Therapy, 1925. Holmes, Edmond: What Is and What Might Be, London, 1914. Epitome: Jour. Ment. Sci., July, 1923, p. 385; July, 1924, p. 478. MacCurdy, John T.: Jour. Ment. Hygiene, January, 1918. Stoddart, W. H. B.: Mind and its Disorders, London, 1919.

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## BRIGHTER BIOCHEMISTRY.

"The chymists are a strange class of mortals impelled by an almost insane impulse to seek their pleasures among smoke and vapour, soot and flame, poisons and poverty." This very proper quotation is to be found upon the title-page of *Brighter Biochemistry*, the illustrated journal of the Biochemical Laboratory at Cambridge. But the quotation does not stop there. "Yet among all these evils," it continues, "I seem to live so sweetly that I may die if I would change places with the Persian King."

And such is the spirit—strange as it may seem—which inspires the third annual number of this witty and amusing production. There are many illustrations, which are chiefly relevant to the personnel of the Sir William Dunn Institute. Most of the humour is local and there is perhaps an excess of it. But in spite of this anyone who has even a moderate knowledge of biochemistry and a sense of humour should enjoy it thoroughly. Cambridge journalism has not produced anything better within recent years. "The Dunnsday Boke" and the report of the holder of the *Brighter Biochemistry* Travelling Fellowship for 1925 are particularly pleasing, whilst everyone will like to see the pictures of Langerhans discovering his islands (complete with a Blue Lagoon and Emmeline and Dick) and of Lawes and Gilbert feeding their pigs.

Copies may be had for 2*s.* 6*d.* from the Editors, the Sir William Dunn Institute, Tennis Court-road, Cambridge.

## A CALL TO MEDICAL ESPERANTISTS.

We have received the first number of a new volume for 1926 of the *Internacia Medicina Revuo*, the official organ of the Tutmonda Esperantista Kuracista Asocio (Universal Esperanto Doctors' Association), which contains a stirring appeal from the pen of Dr. W. Robin, of Warsaw, asking medical esperantists to send to the review accounts of original work by their colleagues in various parts of the world. He points out that unless medical work is reported in an English, a French, or a German journal it is frequently overlooked. Among the articles in the current issue of the review is one by Dr. Maksimiljano Blassberg, of Cracow, on the progress and trend of medical treatment: one on the fight against venereal disease in the United States by Dr. F. Ulman, of Prague; and one dealing with immuno-therapy and protein therapy by Dr. J. Kostrzeski, of Cracow. There are several short original communications, together with editorial extracts from foreign medical journals. The *Revue* is published in France, from rue de la Bassée, 31, Lille, and general inquiries should be addressed to Dr. Briquet there. Original articles should be sent to Dr. Robin, Marszalkowska, 113, Warsaw, Poland, and extracts from medical journals to Dr. Blassberg, Starowislna ul, 18, Cracow, Poland.

## "EMERGOPLAST."

This is a ready-for-use wound dressing made by Messrs. Edward Taylor, Ltd., of Salford and London. It consists of a strip of medicated gauze with an edging of adhesive zinc oxide plaster which is protected by a covering of muslin. For use the plaster is cut up in suitable sizes and the muslin cover stripped off, thus leaving a piece of gauze with an adhesive strip of plaster on two opposite sides of it. The dressing can be applied to a wound in a moment and the medicated gauze, which may contain iodoform 10 per cent., boric acid 15 per cent., or double cyanide, according to requirements, absorbs the discharge and supplies a disinfectant. Each kind of "Emergoplast" is packed in a box containing one yard 2½ inches wide. The idea is excellent.

## THE "CONSTANTE" TRUSS.

Messrs. Alexander and Fowler, of 104 and 106, Pembroke-place, Liverpool, have submitted to us a patent truss which deserves careful trial. They claim that it conforms to the mechanical adaptation of the human hand in its application to the control of hernia. This claim is based on the fact that the band or spring is so constructed that it merely provides a means of holding the hernia pad in place, pressure being obtained by means of a finely tempered spring working independently at the end of the band. This spring may be altered in position so as to give pressure at various points of the pad according to individual requirements. Where it is desirable to limit the outward movement of the pad a rigid finger control-piece is added. By a special gauge the proper amount of pressure for each case can be ascertained and a suitable spring selected.

## MANCHESTER ROYAL INFIRMARY.

The annual report states that the number of patients treated during the year was 57,499, compared with 54,731 in 1924. These included 11,047 in-patients, 17,222 dispensary patients, 26,347 accident-room cases, and 993 venereal diseases clinic out-patients. The daily average of beds occupied by in-patients was 543; the average stay of patients was 17·68 days, and the cost per occupied bed per annum was £165 1*s.* 1*d.* The operations performed numbered 9053. The expenditure was £114,031, an excess of £22,740 over the income. The total number of beds is 1250, made up of 688 in the Royal Infirmary and its central branch, 132 at Barnes Convalescent Hospital at Cheadle, and 430 in the Royal Mental Hospital and branches. There has been a progressive increase in the number of cases treated in the accident-room at the infirmary and at the central branch, from 19,491 in 1922 to the present total of 26,347. The daily average is now 75, as against 50 in 1920. The board of management is faced with a serious difficulty, as the infirmary is not in a position to cope with the increasing demands made upon its in-patient accommodation. At the beginning of the year 1152 persons were awaiting admission to the wards; at the end of it the number had increased to 1682. The situation becomes more acute every year, and the infirmary is able to cope with surgical cases only in emergencies which admit of no delay. For the new nurses' home £150,000 are required, and at the close of the year £45,650 had been received. To diminish the present working hours of the nurses—which are 63 per week for the day staff and 73 for the night staff—to 56 hours, it will be necessary to increase the staff by 157 nurses and domestic servants. The present staff comprises 220 nurses and 113 maidservants. It is intended to make provision in the new home for a total additional staff of 370—257 nurses and 113 maids. The medical superintendent of the Royal Mental Hospital at Cheadle, in a separate report, states that there were 257 patients there, as against 253 in the previous year; 66 voluntary-boarders were admitted during the year.

# Lettsomian Lecture

ON THE

# PRINCIPLES OF TREATMENT IN RELATION TO DISEASES OF THE NERVOUS SYSTEM.

*Being the First Lettsomian Lecture in 1926, delivered before the Medical Society of London on Feb. 15th,*

By E. FARQUHAR BUZZARD, M.D. Oxf., F.R.C.P. Lond.,
PHYSICIAN TO ST THOMAS'S HOSPITAL.

When honoured by an invitation to deliver the Lettsomian lectures, I was naturally impelled, in the first place, to increase my knowledge of the personality and the work of John Coakley Lettsom. This was not a difficult task, as I found a short notice of him in the "Imperial Dictionary of Universal Biography" and a very delightful sketch of his life and character written by a past President of the Society, Sir StClair Thomson, in the forty-first volume of our *Transactions*. From the former article little can be gleaned in regard to Lettsom's personal traits, except that as a dresser at St. Thomas's Hospital "he distinguished himself by that diligence and steady conduct which were ever his great characteristics," and that his sense of humour was evinced by the epitaph he wrote for his own tombstone:

When people's ill, they comes to I;
I physics, bleeds, and sweats 'em.
Sometimes they live, sometimes they die;
What's that to I? I Lettsom (lets 'em).

In the second line of this short verse he summarises the methods of treatment at the disposal of a physician of his day; in the next he refers tersely to the results of treatment in words which are equally applicable to our own efforts. It is difficult to believe that Lettsom owed his phenomenal success to his astuteness in prescribing, his skill in blood-letting, or to the perfection of his methods of promoting diaphoresis, and we must seek elsewhere for an explanation.

From the information provided for us by Sir StClair Thomson we learn that Lettsom could lay no claim to scientific knowledge greater than the average of his generation, which can only be described as meagre and shallow; but it is equally evident that he possessed untiring energy and industry, wide interests in a variety of subjects and pursuits, unbounded generosity, and a sympathetic understanding of human nature—a combination of gifts which brought him more fees and fame than any other medical man of his time. In spite of his ignorance of the doctrines of Freud and Jung, his psychotherapy must still have been the most powerful weapon in the armament he employed for attacking disease, or, shall we say, for treating patients.

Perhaps it was the train of thought provoked by the study of Lettsom's career that led me unwarily to undertake the task of reviewing the principles which guide us, or should guide us, in dealing with diseases of the nervous system in the present state of our knowledge. For, while it is true that psychotherapy is still the most valuable weapon we possess for every-day use in our array of remedial agents, the century and a half separating us from Lettsom in his prime have provided us with a host of others of which he can never have dreamed.

### QUACKERY.

It is interesting to note that in spite of the comparatively limited therapeutic resources at Lettsom's disposal, and notwithstanding the advances which have been made since his day in the science of medicine, particularly in regard to its anatomical, physiological, bacteriological, and biochemical aspects, the rivalry of quackery remains practically undiminished, if, indeed, it has not increased. Sir StClair Thomson quotes the following passage from a letter written by Lettsom in 1787:—

> "Among the people of fashion in London, quackery is cultivated. Can one wonder at lying advertisements, when it is known that Garrick, Lord Lonsdale and the Bishop of London were for awhile the patients of Meyerbach (a German quack). These were men of sense; but what is the intellectual state of our nobility? Perpetually enslaved by the novelty of fashion, however outré, they acquire a constitutional propensity to imitation in everything; and leave the physician as they quit an old coat."

This indictment of society, perhaps without its personalities, has stood the test of time and is still regarded generally as a true bill by members of our profession.

How is it that orthodox methods of treatment, which have steadily gained in range, accuracy, and efficacy, have hardly done more than hold their own in the eyes of the public against the striking though evanescent reputations enjoyed from time to time by quacks and quackeries? It is easy to answer this question by asserting, and with some measure of truth, that there is no limit to the ignorance and credulity of the public in medical matters, but can we boast that we have used our position of authority to best advantage in the way of educating our lay brethren and gaining their confidence? There may be two opinions as to the advisability, or, indeed, the possibility, of educating the public up to a standard of medical knowledge high enough to be helpful in dealing with this problem. In other and less intricate matters the public is content to abide by the advice of the experts whom it employs. We are not all learned in law, engineering, architecture, or agriculture, nor do we value our smattering of knowledge of these subjects so highly as to feel justified in posing as critics of those who have made them their life's study. It is hardly likely, therefore, that in medicine, requiring as it does a long training, not only in its own principles but in those of other preliminary and essential sciences, the layman can ever aspire legitimately to a position from which he is competent to speak with critical authority. Although this consideration is never likely to stifle the incompetent critic, it may stimulate some of us to question how far attempts to educate the public in medical lore should be promoted. It is hardly necessary to point out that public enlightenment in hygiene and preventive medicine may be encouraged without the risk which attends a superficial insight into the pathology, symptomatology, diagnosis, and treatment of disease.

If it is impossible to educate our patients sufficiently in medicine to enable them to realise the advantages of treatment governed by scientific knowledge over that which depends on ignorance and credulity for its acceptance, it is clear that we must find some other method for establishing and maintaining our position of supremacy in relation to that occupied by our unqualified rivals. We must find some method by which the confidence of the public in our knowledge and practice can be won and preserved. Our conviction that we hold all the trump cards in our hands avails us little if we cannot play them with skill enough to win the tricks.

### *The Relation of the Profession to the Public.*

It may be asked, not unreasonably, how is the topic to which I am directing attention germane to the subject of these lectures. I would answer this question in two ways. In the first place it is essential, in order to apply principles of treatment with success in practice, to hold the confidence of those who are submitted to treatment. In the second place it is my intention, while discussing various disorders of the nervous system from a therapeutic standpoint, to review in a critical spirit the measures of treatment in general use with special reference to their effect on the confidence and respect of our patients. It can hardly be claimed that the relationship between our profession and the public at the moment deserves to be described as an entente cordiale, nor can we honestly assert that the blame for this lack of mutual understanding lies entirely with the public. An atmosphere charged with currents of doubt and mistrust is not congenial to our work or favourable to its success, and if I can contribute any suggestions towards the creation of better climatic conditions, I am prepared to run the risk of an occasional burst of indignant thunder. It has been said that our objective in life should be "to kill lies without hurting men," a twofold ambition of which one component is about as difficult to attain as the other, and a task which may ask too much of a physician without the assistance of an anæsthetist.

A first great step would be taken towards the creation of a better atmosphere if it could be noised abroad that we physicians, I cannot speak for surgeons, have no pretensions to curing disease, and that, although we claim some understanding of morbid processes and disorders of function, we are in a position only to act as Nature's allies and agents. Let the claim to cure disease be made only by the unqualified. In these days the difficulties confronting a medical man in treating his patients are greatly increased by the additional task of treating and satisfying the patient's relations and friends. Illness is no longer discussed in whispers in a bedroom; it forms one of the chief subjects of discussion at the tea and dinner table, and advice is accepted, not from the doctor alone, but from all and sundry who are willing or eager to offer it. All the more reason, therefore, that the measures we adopt, the advice we give, and the information we impart to the patient and his family should be based on sound foundations and capable of standing the tests of time and doubt.

### *The Precedence of Diagnosis.*

The first principle of treatment, and I need hardly say that this does not apply only to disorders of the nervous system, is the precedence of diagnosis. This obvious truism, to which no medical man will take exception in theory, gives rise to at least two important questions of which the first is: "What is really meant by a diagnosis?" and the second "In what proportion of cases is this principle acted upon?"

A diagnosis is, or should be, much more than a label; it should inform its maker's mind of the pathology and natural history of the morbid process indicated by its name. The doctor's responsibility does not end with labelling a patient's disorder and prescribing treatment. He should be in a position to describe in general terms the nature of the malady, the course it is likely to take, as well as the objective and probable effects, if any, of the measures he may recommend. It is true that the patient is content with a name, of which he thinks he knows the meaning but does not, and insists on having some form of treatment. In this respect the osteopath has an advantage over us. He has only one diagnosis and one treatment for all the ills to which human flesh is heir. A bone out of place is the diagnosis; its replacement the treatment. The simplicity of the whole thing is what appeals to the lay mind; its absurdity appeals only to our sense of humour.

### *A Label and a Treatment.*

But before passing judgment on the osteopath let me remind you of the kind of letter every consulting neurologist receives at least once a week:—

DEAR A,—I have made an appointment for Mrs. B to see you. She came to me three months ago complaining that she could not use her right hand properly. I could not make out much wrong, and her reflexes were normal. I called it neuritis and ordered her massage and electricity which did no good. Then I gave her "hormotones" with a negative result. Since then she has been to an osteopath. I should be glad of your opinion and advice.—Yours truly, C.

No history of the patient's disability and no diagnosis; a label and a treatment. I am not suggesting that in all cases of the kind the patient has suffered in the sense that valuable time has been wasted. I do submit, however, that the massage and electricity and hormotones are as good examples of quackery as the osteopath's bloodless surgery, and that Mrs. B and her relatives can hardly be blamed if they fail to recognise a difference between qualified and unqualified practitioners. I can hear C's defence. He does not pretend to know anything about nervous diseases, and although he suggested a second opinion months ago, Mrs. B would not consent. If he had insisted she would probably have left him and gone to D. But in the long run would it not have been to C's advantage and all for the good of our profession's reputation that she should go to D? If such principles as "diagnosis before treatment" guided all members of our profession, as many of D's patients would come to C as of C's to D.

Let us suppose that Mrs. B was suffering from the early manifestations of Parkinson's disease, and let us suppose that the diagnosis had been made and the following advice given her:—

"You are suffering from a disorder of the nervous system for which there is no cure known. It may progress slowly or it may remain stationary for a long time but it is unlikely to improve. It does not affect the mind and it does not lead to paralysis and the horrors you associate with that word. You will find that it makes you slower and more awkward and perhaps shaky in your movements. Massage will only make you feel a little less stiff for a short time; electricity is useless. Certain drugs may make you more comfortable and perhaps lessen the shakiness, but on the whole, you will be well advised to carry on with your activities to the best of your ability and to place little or no reliance on treatment. You will be urged by your friends to try this, that, or the other cure, but each would only lead to another disappointment, impress your trouble more firmly on your mind and certainly waste your money."

Mrs. B would adopt one of two courses. Probably she would disregard the advice, waste time and money on all sorts of cures recommended by her friends, and perhaps in the end regret her lack of confidence in her doctor. Possibly she might accept the situation and succeed in keeping on top of her disability; at any rate, she would be saved the misery of the alternating hopes and disappointments which are the lot of those who seek cures for incurable disease. Is it not possible that if we were, one and all, to give advice to our patients on the lines I have indicated and to run the risk of losing a few of them, the time would come, and at no great distance, when the public would listen with confidence to our words of wisdom and would realise that they must turn to the science of medicine, not to quackery, for help and guidance in times of need.

We all of us denounce quacks, some would legislate against them, and, I fear, many imitate them, but I am convinced that only by raising our standard of practice in proportion to our knowledge, and by holding and living up to ideals foreign to our competitors, can we hope to win the public respect which is due to a scientific profession. Competition between qualified and unqualified practice would cease to exist with the cessation of any similarity between the methods they adopt, and the public, not the profession, would reap the greater benefit from the change.

Having thus cleared the air, as it were, by laying an indictment, not so much against unscrupulous quacks nor against a misguided, press-ridden, and over-credulous public, but against our perhaps too-satisfied selves, and by suggesting a curative treatment which *may* be Utopian and is certainly difficult to carry out, I propose to draw attention to matters of more practical moment.

### LESIONS OF THE UPPER MOTOR NEURONE.

Let me begin by a consideration of the principles which should guide our treatment when confronted by disorders of function involving the upper motor neurone.

For the purpose of illustrating various points of importance, I will take for my text a straightforward case of right hemiplegia resulting from a vascular lesion in the neighbourhood of the left internal capsule. With the treatment of the patient's cardio-vascular condition we are not here concerned, but three or four days have elapsed since his "stroke," he is fully conscious, and is confined to bed with his right arm and leg flaccid and paralysed.

Experience teaches us that immobilisation of the limbs favours the formation of adhesions in their joints, especially those of the shoulder, hip, and knee. Our first duty, therefore, is to instruct the nurse to move all the joints of the paralysed limbs in all possible directions at least three or four times in every 24 hours. Foreseeing also that with the gradual return of tone to the muscles the limbs will tend to assume certain fixed postures, instructions must be given to the nurse that they are not to be allowed to remain in any one position for many hours at a time, and that pillows, or perhaps sandbags, should be employed for the purpose of counteracting the postural tendencies. It is particularly desirable to combat the tendency of the arm to become strongly adducted at the shoulder by placing a pillow in the axilla and to prevent the preponderating tone in the flexors and pronators at the elbow from imposing their authority in regard to the position of the forearm. At frequent intervals, and for some hours at a time, an attitude of extension should be maintained at the elbow, wrist, and finger-joints. In the lower limb similar precautions will be necessary to prevent it assuming a fixed position of adduction and internal rotation at the hip with extension and inversion at the ankle.

The precautionary manipulations I have indicated can be carried out by any nurse without special training. It is the doctor's knowledge of what is likely to happen in their absence and his directions to the nurse which are of paramount importance. Very shortly two things will happen. The patient will realise that he can make some movement, probably of his leg; the patient or his family will ask: "When do we start massage and electricity?" This is the crucial moment in relation to the patient's subsequent progress and welfare, the moment when the doctor needs to summon the scientific knowledge he possesses to his aid and to use it for the education of his patient. It is, indeed, to the education of his patient during the next few weeks that he must apply himself if the best possible result is to be attained.

### *Principles to be Observed in the Education of the Patient.*

May I recall to the doctor's mind some of the essential facts underlying the principles which must be his guide in this process of education. The lesion which has paralysed the patient is one involving the upper motor neurones and therefore has not directly interfered with the normal function of any muscle in the paralysed limbs. There is a failure on the part of the patient to carry out certain voluntary movements; there is no failure on the part of the muscles and no blame attaches to them. This is not a theory but a fact which can easily be demonstrated to the patient in numerous ways. If he is observant he will, perhaps, have noticed already that when he yawns his seemingly paralysed arm makes a movement comparable to the "stretch" of his sound limb, that when he makes a big effort with his left side certain involuntary movements occur in his right limbs which he cannot reproduce separately at will. When you tap his tendons the muscles contract briskly and strongly, and if an electric current is applied to them they respond in normal fashion. Noxious stimulation of the sole of the foot or of the palm of the hand may give rise to widespread movement quite outside the patient's control. The evidence is overwhelming, therefore, that there is nothing the matter with his limbs or their muscles, and therefore nothing to treat in them.

And yet in 75 per cent. of cases massage and electricity will be ordered for the limbs and the patient led tacitly to understand that they are the agents responsible for his recovery. It may be granted that, as I have already pointed out, some simple passive movements are desirable in order to prevent complications and that a little rubbing will promote the circulation in limbs which are apt to get cold and stiff as the result of their immobilisation; but electricity! If all the current wasted in a year on the limbs of hemiplegic patients could be stored in accumulators, the Prime Minister's scheme for supplying electricity to the country would be rendered superfluous! Must we really go on allowing and even encouraging the public to believe that electricity has some magic influence in restoring nervous energy to paralysed limbs or that it has any curative properties whatever. Is not its use in some departments of medicine as unjustifiable and useless as osteopathy, homœopathy, chiropraxy, or the like?

But to return to the patient and his education. Let me give the gist of what he must be told, not, perhaps, all at once, but in varying language and on many occasions until he has thoroughly mastered his lesson.

"In health when you wish to make any particular movement of a limb, your brain sends an impulse by nervous paths to muscles, or groups of muscles, which contract and so carry out the movement you desire. As the result of your illness there is some obstacle in the way of impulses passing from your brain to your right arm and leg. You have the desire to make a movement and the impulse is started but it does not reach the limb. You might think that the fault lies in the muscles or joints of your arm or leg but that is not the case. They are perfectly healthy, as I can demonstrate to you, and are ready to perform the movements you desire so soon as you can succeed in sending the necessary impulses to them. As far as we know, there is no reason why the obstacle to the passage of impulses should not be overcome, as a result partly of Nature's power of healing and partly of your own efforts. You must not expect any treatment applied to the limbs in the way of rubbing or manipulations to help in restoring your power of moving them. The object of the masseur is to keep the muscles and joints in good condition until such time as you can make use of them yourself. This is a case in which you, although the patient, have to carry out the greater part of the treatment yourself and you cannot depute the task to anyone else.

"We shall want you to devote a few minutes, several times a day, to making attempts at movements, in other words, to sending impulses on their way. But this must be done in a systematic manner if it is to achieve the quickest and best results. It is not much good saying to yourself, 'I will move my arm' or 'I will move my leg' heedless of what movement, if any, results. Study the movements which you can carry out at each joint in your sound limbs and attempt to repeat each one on the other side. You have already succeeded in bending your elbow very slightly; this movement will be retained and grow stronger every day. You need not bother so much about the movements you have acquired but give more attention to those which are still lacking. You cannot bend your wrist as yet, but look at it several times a day and make the mental effort to bend it and one day it will answer to your call."

I have repeated this lesson in order to submit that it indicates, in a few words, practically all that can be said in regard to the principles of treating patients with lesions of the upper motor neurone. To leave the patient without this enlightenment is to neglect our chief responsibility; to tell him more is to embark on the task of educating someone who lacks the elementary knowledge essential for its accomplishment.

Other and perhaps more cogent reasons for emphasising the importance of such a lesson are, first, the infrequency with which it is taught, secondly, the valuable results I have observed to follow its teaching. After all, what is the value of our knowledge if we do not make full use of it? Ignorant of medical science, any layman when confronted with inert limbs jumps to the conclusion that something must be done to them to restore their life and that massage and electricity are the obvious agents for that purpose. Why should we pander to such ignorance and descend to the level of the quack?

I am quite alive to the fact that the masseur of the present day is often intelligent enough to encourage his patient to carry out movements against resistance, and by so doing, to enlist his interest in his paralysed limbs, which is the first therapeutic requirement. But in ninety-nine cases out of a hundred the patient is convinced that it is what the masseur does to him and not what he does himself which is responsible for his gradual return of power. I can hear the question asked: "What does it matter what the patient thinks so long as he improves?" In my opinion it matters a great deal from the point of view both of the patient's pocket and of our professional reputation. Moreover, it has often happened to me when seeing hemiplegic patients that I have been able to demonstrate their ability to perform voluntary movements of which they were quite *unaware even after months of massage.*

The principles governing the treatment of hemiplegia are, as I have already said, equally applicable to all conditions in which the upper motor neurones are at fault, whether the lesion lies in the brain or in the spinal cord. In many instances the patient's activity is as much interfered with by the development of spasticity as by the impairment of his voluntary power; indeed, it is not unusual to find a sufficiency of voluntary power for practical purposes defeated by the presence of hypertonus. Various surgical procedures have been advocated for the purpose of reducing this handicap, but the success which has attended their practice has only been of limited range and in selected cases. Looked at from the physiological point of view, we must still base most of our hope on the persevering efforts of the patient who, by gradually developing the inhibitory influence of his upper neurones, may do much to keep in check the reflex mechanism responsible for involuntary spasms. For this reason we are again obliged to enlist the patient in his own service and to admit that there is little we can do to supplement his own systematic efforts. If there is one thing to be avoided in such cases it is the application of electricity, an agent which, if it has any influence, can only be in the direction of increasing reflex irritability.

### LESIONS OF THE LOWER MOTOR NEURONE.

The principles which should guide us in treating patients suffering from lesions of the lower motor neurone are simple and easily defined, although they must necessarily be modified in practice by our knowledge of the nature and natural history of the lesion in any particular case. The lower motor neurone differs from the upper in the fact that it has *to do with individual muscles and not with voluntary movements*, and in its ability to regenerate after injury so long as its cellular element is not destroyed. In some diseases, therefore, we can entertain the hope that nature's efforts may restore normal function, or at any rate succeed in bringing about some measure of recovery. In others we are faced by the certain knowledge that death has overtaken the essential cells and that nothing can be done to bring them back to life.

The acute specific fever which we recognise by the name of acute poliomyelitis may be usefully employed as an example of a lower motor neurone lesion on which our principles of treatment can well be based. Let us take, for instance, the case of a child about 10 years of age, who suffers from an acute illness, with the usual disturbances of health associated with an acute specific fever, and who develops a widespread and flaccid palsy of two or more limbs. The illness may last but a few days, at the end of which time the patient is unable to utilise his right arm and leg. Two or three weeks later, quite irrespective of any treatment, it will be found that the patient has recovered the power of contracting certain muscles in the paralysed limbs, while other muscles not only fail to respond to volitional efforts, but exhibit the reaction of degeneration to electrical stimulation, and are obviously losing their normal bulk and tone.

The upper limb will serve to supply us with all the material necessary for the question of treatment. We find that function has returned in the small muscles of the hand, the flexors of the wrist and fingers, and in the extensors of the elbow. The spinati, deltoid, biceps, and extensors of the wrist show no sign of life. In other words, the brunt of the inflammation in the spinal cord has fallen on the fifth and sixth cervical segments. The disease has run its course and is a thing of the past. Certain muscles have recovered their ability to contract in obedience to the patient's will and may be left to regain their former strength without anxiety. What can be done about those which *show no signs of life except their ability to respond* to the make and break of a galvanic current?

The mischief in the cord has been done, and we have no means of restoring to life cells which may be destroyed. We know of no method by which we can help to restore the function of those neurones which are *not destroyed but only temporarily crippled.* We must be content, therefore, to keep the paralysed parts in so healthy a condition that any restoration of function in the nervous paths may find the muscles, tendons, and joints fit to undertake their task once more. Immobilisation is the chief danger threatening the joints and this can be easily averted by daily passive movements of the simplest kind. These movements will also insure against any tendon becoming unduly shortened by any fixation of the limb which we may be obliged to resort to. What about the muscles? Their nutrition can be maintained by keeping them warm and by rubbing, and their contractility perhaps promoted by applying such electrical stimulation as will cause them to contract. Finally, we must remember that a muscle which, having lost its tone, remains passively stretched for any length of time will not recover its function even when its nervous connexions with spinal centres have regained their normal activity. In our particular case the weight of the limb hanging by the patient's side will tend to stretch the paralysed and toneless deltoid and biceps, and unless this mechanical strain is avoided it will be hopeless to expect those muscles to recover their function. A splint, removable to allow of daily joint movements and muscle rubbing, must be devised to keep the arm abducted at the shoulder, the elbow flexed, and the wrist extended, the positions in which the deltoid, biceps, and extensors of the wrist are maintained in a condition of relaxation.

The measures I have described comprise all that lies in our power to promote the restoration of function in muscles put out of action by lesions of the lower motor neurones, and may be applied to all conditions in which hope of such recovery is justified, such as injuries to peripheral nerves or peripheral neuritis. On the other hand, the length of time during which these measures should be persevered with must vary with the nature of the lesion. In the case of acute poliomyelitis it is customary to teach in general terms that treatment should continue for a year or 18 months after the acute illness. This may be true if all cases, including those who have not been treated from the beginning on the principles I have indicated, are included. If, on the other hand, we take cases which have received efficient treatment from the onset, those muscles which show no return of function at the end of four to six months will not develop a sufficient amount of power to be of any practical use, however long massage and electrical treatment may be continued.

A general recognition, therefore, of the principles governing the treatment of patients suffering from the effects of acute poliomyelitis would result in a considerable economy of muscular energy, electrical current, time, and money. When the conclusion is arrived at that no more restoration of muscular power can be expected, further treatment must depend on the particular disability of each case and on what orthopædic measures can be devised to reduce the disablement to a minimum. No general principles governing these procedures can be laid down; anything from a simple tenotomy to a complicated mechanical support or an arthrodesis may be required.

### *Motor Neurone Degeneration.*

This is a modern term denoting progressive muscular atrophy, bulbar palsy, and amyotrophic lateral sclerosis. The condition is, as its name implies, one in which there is a gradual but progressive degeneration or dying out of all the chief efferent tracts. In all three types both upper and lower motor neurones are involved in the process of decay, but in the two first named the muscular atrophy resulting from the loss of lower motor neurones is the predominant clinical feature. We are entirely ignorant of the cause of this disease and equally powerless to arrest or even influence its course. Although the rate of progress is variable, there is no proof that methods of treatment which are generally applied either hasten or postpone the inevitable fatal termination. It might be said, therefore, that since all treatment is valueless, there can hardly be principles which govern it. But something may be said in regard to the handling of these terribly distressing cases, something which may help the public to distinguish the practice of the profession from that of the quack. The diagnosis having been made, what information should be imparted to the patient and his relations? Something must be said and some advice given, but what? There appear to be two alternatives which I will indicate in language of my own choosing. In the first place, you may say to the patient:—

"Some of your muscles are wasting and becoming weak. You must have some massage and electrical treatment to strengthen them and I will give you some injections of strychnine in order to tone up your nervous system."

*No promise of cure, true; but a suggestion, a strong suggestion, that* the measures you prescribe will bring about some amelioration. Result after one, two, or three months' treatment varying with the sufferer's patience and pocket—certainly no better, probably rather worse. "The doctor evidently does not understand my case and I will try an osteopath recommended by Lady X" Osteopath, more straightforward than the doctor, promises a cure, but it means a long course of treatment and payment in advance, *a suspicious symptom overlooked* by the patient. His diagnosis, treatment, and failure are all foregone conclusions, and we need pursue this patient's miserable adventures no further. Suffice it to say that, looking back on his experiences, he is unable to distinguish that which he underwent with his own doctor from that with the osteopath except in one not unimportant feature; the osteopath has been paid and the doctor is still hoping!

The alternative *method is to address the patient* in some such terms as these:—

"As you see for yourself, your hand is weak because some of the muscles have wasted. As a matter of fact, the fault does not lie in the muscles themselves but in some of the nerve cells which ought to nourish them. These cells have decayed before their time just as some people's hair goes grey or their arteries become hard sooner than usual. It is a process with which we are quite familiar, of which we don't know the cause and for which there is no reliable remedy. The muscles *which have withered will not regain their* size or power, and other *muscles may become affected* in a similar manner, but such an event may be long postponed. In order to put as little strain as possible on these obviously fragile tissues, I shall advise you to save yourself all unnecessary muscular exertion. Don't be led *into the belief that* exercising these failing muscles will increase their size or *power.* It is true that healthy muscles will respond in that way, but that is because both they and the nerves which nourish them are healthy For the same reason avoid electrical treatment and injections of drugs like strychnine which will not do good and quite possibly may do harm. It is no good whipping tired horses and *it is still more useless* to stimulate tired muscles and nerves. On the other hand, gentle massage might be helpful in maintaining the nutrition of what muscular tissue is left although you must not regard it as a curative measure You have nothing to fear in the way of pain. Although the condition is not without danger, I have *known* patients who have lived many years in spite of it and whose lives have not been shortened by it."

These words contain the truth, perhaps the whole truth, and certainly nothing but the truth. Whether they are accepted is not our co cern. We have done all in *our* power not only to help the patient physically, but to save him from the mental anguish which follows on disappointment and which is *far* more distressing than any bodily disablement. We have given him the opportunity of making once and for all his psychological *adjustment* to whatever fate has in store for him and of avoiding the suffering engendered by false hopes *and* cruel disillusions. Further, and of less importance, the event, whether our advice is heeded or unheeded, will vindicate our professional knowledge and the knowledge of our profession.

In this *my* first of three lectures I have chosen for discussion some disorders of nervous function the causes of which we are powerless to influence or control. The problem of treatment in each instance, using the word treatment as covering all that concerns the patient's welfare, has been the application of certain principles derived from our knowledge of what natural forces can do and how, from a physiological and anatomical point of view, these forces can be aided and abetted. But on the foundation provided by these principles, I have based an appeal for the more serious consideration of two of our many responsibilities. Of these the first is our responsibility for the psychological as much as for the physical health of our patients even when they are the victims of organic disease; the second is our responsibility for raising the standard of our practice as high as is *possible above that of quackery, so that sooner or* later the public may have no room *for doubt as* to where to place their faith.

# Remarks
## ON THE
## RÔLE OF THE MESENTERY IN VISCERAL DISORDERS.

*A Lecture delivered at the London School of Medicine for Women*

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THIS subject was chosen in order to emphasise that the mesentery receives too little attention in the study of visceral disease. It is a subject which clearly covers so much ground that it is impossible, in the allotted time, either to consider every aspect or to enter into any great detail.

In the first place we should realise that, though the gastro-intestinal tract possesses a large measure of independence and autonomy, it is of no physiological value without its mesentery. In it are contained —

(*a*) *Arteries and veins*, which not only ensure the vitality of the gut, but, in the latter case, are *designed for* absorption of the foodstuffs prepared for assimilation *and for* the removal of waste products.

(*b*) *Lymphatics*, which exercise the dual function of absorption and the removal of waste products.

(*c*) *Nerves*, both motor, inhibitory, and *sensory*. These exercise a governing control, in accordance with the needs *of the body, on the otherwise* independent movements of the gut. To some extent also they synchronously influence the digestive secretions.

It is obvious that *a structure of* such vital importance should be elaborately provided with means of defence, the *breakdown* of which must interfere with vital processes and lead to a variety of visceral disorders. Some of these I propose to discuss this evening in the hope that a departure from the beaten track may stimulate your interest and provoke discussion.

The *defence* of the mesentery against damage to its contained structures is of two kinds:—

(*a*) *Against Infection*.—This is provided by the lining of peritoneum with its endothelial cells. This, as you are well aware, is endowed *with bactericidal* properties manifested by the outpouring of serum and lymph formation. I do not propose to refer in detail to a subject *so* familiar to you all.

(*b*) *Against Mechanical Injury*.—This occurs under pathological conditions in *two ways—i.e.*, pressure and tension. The means of protection against mechanical injury are: (1) fat and areolar tissue contained in the mesentery; (2) the tone and development of the abdominal muscles; and (3) the mesenteric Pacinian corpuscles.

### DEFENCES OF THE MESENTERY AGAINST INFECTION.

Peritonitis may be general, diffuse, or localised, depending on the virulence of infection and the degree of resistance. When the parietal *peritoneum* alone is involved the overlying muscles are on guard and rigid; but apart from constitutional symptoms there is no associated gastro-intestinal disturbance. When, however, the inflammatory process involves the mesentery the afferent and efferent nerves are irritated, and the Pacinian corpuscles are also involved. From this certain characteristic symptoms arise which are to be taken as indications of a defensive mechanism. This is best illustrated by concrete examples.

*Acute Appendicitis.*—You are familiar with the classical symptoms and signs in typical cases. But, if the appendix itself is sensitive (or responsible for the symptoms for which it is blamed), how is it that in one instance vomiting is pronounced and in another absent? Why is one subject constipated and in another the motions are normal, &c.?

Consider first the appendix adjacent to the ileal mesentery. Inflammation involves the mesentery of the ileocæcal angle and irritates—

(1) *The Pacinian Corpuscles.*—From these proceed:

(*a*) *Pain*, which is generalised over the mid-abdomen, since the hyperæmia extends for a variable extent over the ileal mesentery. The localisation of pain later to the right iliac fossa is an indication of the extension of inflammation to the parietal peritoneum in the vicinity.

(*b*) *Afferent impulses*, eliciting an efferent response along the somatic nerves to the abdominal muscles. This results in the abdominal rigidity or "guarding" with which you are familiar; and which, together with thoracic respiration (i.e., limitation of abdominal movement), is clearly a defensive measure.

(2) *Efferent Nerves.*—The stimulation of these in their course by the inflammatory process results in inhibition and immobility over the area of gut supplied—the ileocæcal angle. As you know, it is difficult physiologically to stimulate the vagus in its efferent course, because the sympathetic dominates. The same is true clinically, so that the affected viscera are kept at rest. The result is that *constipation* is characteristic.

(3) *Afferent Nerves.*—The efferent response to this is manifested by efferent sympathetic stimuli resulting generally in closure of the pylorus and a generalised inhibition and immobility of the intestinal tract. At the same time the afferent vagus stimulus elicits gastric contraction through its efferent response. The result is vomiting and an accentuation of constipation with gradually increasing distension.

If these symptoms be contrasted with a similar inflammation of a retrocæcal appendix (when the mesentery is intact and there is no involvement of vagus or sympathetic) it is noticeable that vomiting is rare and the bowels are often normal, while rigidity is absent, until the peritoneum is involved by direct extension. Similarly in acute salpingitis these symptoms are absent until the mesentery is involved.

This mechanism is obviously designed to achieve the first principle in the treatment of inflammation—i.e., *to rest the inflamed part.* Thus the inhibitory impulses immobilise the bowel and limit the spread of inflammation; and this is assisted by the motionless abdominal wall. Vomiting and pyloric closure prevent food entering the intestinal tract and ensure rest. For the clinician the moral is obvious—namely, to assist by imitation this defensive mechanism; and this is the principle of the Fowler treatment. The removal of the appendix with the minimum disturbance (Murphy said "quick in and quick out"), followed by starvation, rectal saline and glucose, and morphia are best calculated to achieve the maximum of rest. To these I would add radiant heat and fomentations for reasons to be discussed later. Purgation is wrong in principle. As the inflammatory process subsides the intestines will begin to move again, and then the action of the bowels can be assisted by a wash-out and pituitrin.

*General Peritonitis.*—This is only an exaggerated example of the one discussed. Clearly the whole intestinal tract is involved, and the symptoms are more severe and the distension very much greater. Finally, the "ileus" may be sufficiently pronounced to constitute a serious condition in itself. So-called "paralytic ileus" deserves separate consideration.

### DEFENCES OF THE MESENTERY AGAINST MECHANICAL INJURY.

1. *Pressure: Paralytic Ileus.*—We have already seen that ileus may be produced by sympathetic stimulation, and that this is a defensive measure calculated to provide rest for the inflamed part. To call this "paralytic ileus" is a misnomer, since it is active inhibition. But it may easily develop into a true paralytic ileus. As the intra-abdominal pressure rises *the most collapsible structures will be first effected*—i.e., the *veins*. Increasing pressure on the veins leads to progressive venous stasis. You all know that muscle becomes rapidly fatigued and cannot contract unless its arterial and venous circulation is intact; so that, engorged with venous blood, intestinal muscle becomes inert and distension is accentuated. It is clear that "active ileus," if I may so term it, whether originating primarily from infection, or from mesenteric injury (as in post-operative ileus) may progress towards a true "paralytic ileus." *And the point to note* is that the latter is vascular in origin.

While the treatment of active ileus is rest, the treatment of paralytic ileus must be amplified and is directed to:—

(*a*) *Circulation.*—The withdrawal of blood from deeper structures and the efficiency of the heart's action are the first step. *Radiant heat:* There is no more efficient treatment than repeated radiant heat baths to the abdomen for 20 minutes or half an hour at a time, and renewed hot fomentations. These are followed by 1 c.cm. of pituitrin hypodermically and a turpentine wash-out. This is frequently followed by the passage of flatus, and again by slow distension. Frequent passage of the flatus tube is also of value, and small doses of morphia are indicated. The use of radiant heat to the abdomen (originally taught to me many years ago by Sir George Makins) has proved invaluable; but I am often surprised to find how seldom it is employed. The heart's action should be ensured by the usual stimulants.

(*b*) *Diminution of Intra-abdominal Pressure.*—Repeated attempts to secure the passage of flatus has been mentioned, and will succeed directly the circulation is sufficiently restored to permit of muscular contraction. It is useless to employ purgatives. *Gastric lavage:* This is another valuable means of reducing intra-abdominal pressure. In the majority of instances the condition will gradually yield to treatment along these lines. Where, however, the ileus is intractable and distress is great, more active steps must be taken. *Spinal anæsthesia* has been known to be followed by the passage of flatus and fæces, probably by reason of the complete abdominal relaxation it induces. *Temporary ileostomy:* This is most valuable as a means of reducing intestinal distension and intra-abdominal pressure. Arbuthnot Lane advocates opening the abdomen and suture of the skin alone—i.e., establishing a ventral hernia—in order to reduce pressure. Other instances of paralytic ileus of vascular origin are to be found in the terminal distension associated with lobar pneumonia, right heart failure, &c.

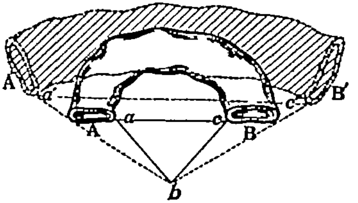
2. *Mesenteric Tension: Local Ileus.*—As an introduction to this subject I may first emphasise the difference in symptoms between intestinal obstruction and strangulation. In the former complete obstruction may exist for days, or even a week or so (if gradual in onset), without marked constitutional disturbance. Often the tongue is moist and fairly clean, the complexion may be good, &c.; in fact, there is often little general evidence of serious trouble. Thus the complete retention of intestinal contents, *colic and distension, may fail* markedly to impair the general health. Contrast with this the rapidity with which the pinched face, rapid pulse, intestinal breath, subnormal *temperature*, sunken eyes, and vomiting are established within a few minutes of acute strangulation. The acute pain and vomiting at the onset are due to the sudden injury to the mesentery by the strangulating agent (in contrast to the insidious onset when only part of the bowel wall is nipped—e.g., Richter's

hernia); but with the passage of the initial symptoms is ushered in a rapid and progressive illness. In a very short time the most striking symptoms are the dry, brown tongue and the fœtor of the breath, which are characteristic of an intestinal lesion.

Now this contrast should tell us that the retention of intestinal contents (or intestinal stasis) per se is greatly over-rated as a cause of the symptoms referred to. You are all familiar with the effect of ligaturing the veins of a loop of gut while leaving intact the arterial supply. In strangulation the veins, being most collapsible, are occluded; and, as in the experiment, the venous pressure rises. I suggest that the passage of serum and gases from the blood into the occluded loop continues until the pressure here exceeds that in the adjacent veins which are not occluded. Such gases will be rapidly passed into the circulation, carried to the lungs and exhaled. As the strangulated loop becomes gangrenous it forms a focus of continuous and progressive toxic absorption. These causes of rapid absorption do not exist in obstruction of the intestinal lumen; and the inference is that local interference with the return of venous blood is one of the primary factors in producing local ileus, as well as in the resulting absorption of toxins. It would follow that the absorption of toxins from retained intestinal contents is negligible until the circulation is so impaired.

Before applying these principles clinically there is one more point I wish to mention. You probably all remember that increase of pressure in a curved metal tube tends to straighten it proportionately to the rise of pressure. Indeed, this principle is utilised in scientific instruments and is easily demonstrable in rubber tubing. Now it is of interest to note that nearly all the hollow viscera are fashioned on the principle of the curved tube, owing to the origin of the mesentery being so much shorter than the attached gut. Intestinal distension results in a proportionate stretching of the mesentery in two directions: (1) longitudinally in the axis of the intestine; (2) at right angles to the gut and towards the origin of the mesentery (see Fig. 1).

FIG. 1.



A–B = Normal loop. A′–B′ = Distended loop. *a–c* and *a′–c′* = Longitudinal tension *a–b* and *a′–b* = Vertical tension.

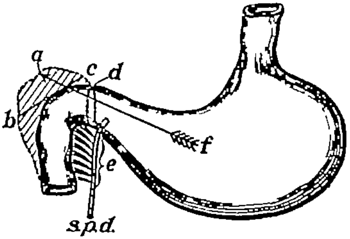
The vertical tension of the mesentery in distension is exemplified by the protrusion of the intestine from the abdomen during laparotomy for obstruction. I have satisfied myself by experiments in the cadaver and in animals that the point is a practical one. Again, the effect of this tension is manifested first in the most collapsible structures—i.e., the *veins*. And the first practical application is the relationship of local ileus and venous stasis to gastro-intestinal ulceration.

CLINICAL ILLUSTRATIONS.

*Gastro-intestinal Ulceration.*—(1) *Stercoral ulcer:* This is one of the late results of distension arising from obstruction. It is significant that venous stasis is always seen in prolonged intestinal distension; and that stercoral ulcers are found at or near the anti-mesenteric border—i.e., in the capillary area most remote from the main vessels. The situation of the ulcer will naturally vary to some extent with the incidence of such factors as trauma, infection, &c., but, on the whole, the situation is fairly constant.

*Chronic Ulceration.*—(2) *Duodenal ulcer:* If we apply general principles to the problem of chronic ulceration in the gastro-intestinal tract, the first point to remember is that one of the greatest enemies to healing is the imperfect removal of waste products owing to an obstructed venous return. I need only mention the familiar varicose ulcer which generally heals quickly when the venous return is assisted by rest and elevation of the limb. Now, unlike the stomach and small intestine, the duodenum is a fixed viscus with no mesentery; therefore straightening of the "curved tube" under increased pressure does not apply to the same extent. On the other hand, distension must clearly affect first the convex border, where the vessels are smallest and most easily obliterated; and this increased pressure will specially affect the most mobile portion—namely, the first part—which becomes the most anæmic. At this point I would remind you that hyperactivity, hypersecretion, and, to some extent, hyperacidity (which are characteristic of duodenal ulcer) are all indicative of the domination of the vagus or motor impulses over the sympathetic.[1] I have elsewhere shown further that the resulting widely patent pylorus, which obtains in duodenal ulcer, favours: (*a*) rapid passage of organisms direct to the first part of the duodenum; (*b*) trauma; and (*c*) distension. All of these are first felt, under these conditions, by the first part of the duodenum.

FIG. 2.—*Duodenal Type of Stomach.*



*a* = Situation of greatest distension. *b–c* = Most anæmic area. *d* = Widely patent pylorus. *e* = Situation of main blood-supply *f* = Projection of pieces of solid food, organisms, &c., direct on most anæmic area. *s.p.d.* = Superior pancreatico-duodenal artery.

If all these points (illustrated in Fig. 2) be borne in mind, it is not difficult to understand the remarkable constancy in situation of the vast majority of duodenal ulcers. Nor is it difficult to appreciate that vagus domination is the essential predisposing factor. Sometimes duodenal ulcer develops consequent on ileus due to compression by the superior mesenteric artery. In such cases Wilkie's operation of duodeno-jejunostomy would appear to be the rational procedure, combined in some instances with ascending colopexy. Macdonald, of Seville, informs me that he has definitely cured duodenal ulcer in such cases by performing Wilkie's operation.

3. *Gastric Ulcer.*—In chronic gastric ulcer an entirely different picture is presented. Here we are dealing with a freely mobile hollow viscus of the "curved type," the distension of which tends to straighten out the concave surface. On this surface the main vessels of the coronary-pyloric blood-supply lie in the gastro-hepatic omentum parallel to the lesser curvature, and, it is to be especially noted, *closely applied to it.* Any straightening of the lesser curvature, under distension, is bound to exert corresponding tension and partial obliteration of the venous return. On the greater curvature it is to be noted that not only are the main vessels (gastro-epiploics) situated a considerable distance from the stomach,

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[1] Pathology and Symptoms of Duodenal Ulcer, Brit. Med. Jour., June 14th, 1924.

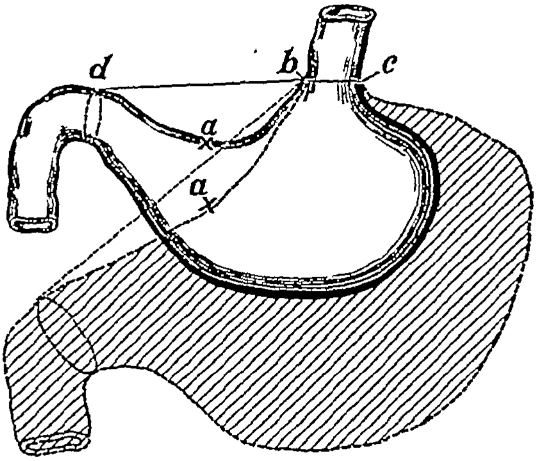
but that, under distension, the anterior part tends to *bulge downwards and forwards in front of these vessels.* There is, therefore, little tendency towards tension on the main veins or obstruction to the venous return.

As a contrast to the former (vagus) type of stomach we are now considering a "sympathetic type." Here the sympathetic impulses dominate the vagus. The pylorus is actively closed and responds sluggishly to the normal mechanism. Intragastric tension is raised and is associated with corresponding obstruction to the venous return over the pyloric and lesser curvature areas. The low acidity common to the "sympathetic" stomach favours infection. If now we add trauma as an exciting factor it is not difficult to appreciate the occurrence, persistence, and recurrence of a chronic ulcer along the lesser curvature, when venous stasis is dependent on persistent or recurrent increase of intragastric tension.

It follows that pyloric closure with the resultant *distension are primary factors in the persistence of* chronic ulcer. The *situation of the ulcer* should be to some extent influenced by the degree of fixity of the pyloric end of the stomach. (*a*) With the very movable pylorus it would be expected that the ulcer would be about the middle of the lesser curvature (Fig. 3, *a*). (*b*) When, however, the pyloric end is relatively fixed, the ulcer will be more liable to form in the areas *a–d* or *a–b*, since there is little venous tension at *a* (Fig. 4).

These expectations are partly based on animal experiments and on observations in the cadaver. And, while it is not possible to be dogmatic, my present impressions are that clinical observation also affords some confirmation. Incidentally it is worth noting how frequently gastro-enterostomy performed for *gastric ulcer* may relieve the symptoms for a time without really curing the ulcer. It is my belief that gastro-enterostomy in such cases achieves its result almost entirely by the relief of intra-gastric tension, and consequent restoration of the venous circulation in the ulcer-bearing area. To some extent also it provides a measure of rest to the stomach proximal to the anastomosis. That the reduction of acidity following gastro-enterostomy influences greatly the healing of ulcers proximal to the pylorus cannot be established on clinical evidence.

FIG. 3.

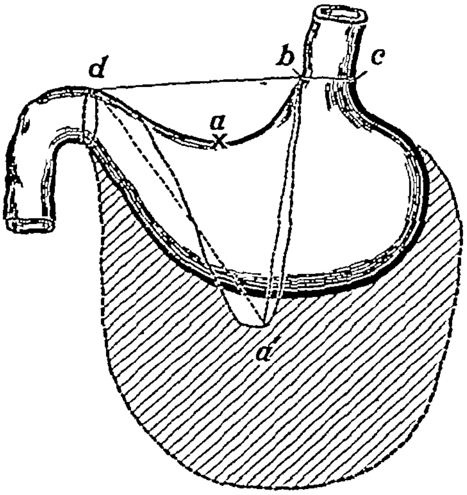


*b–c* = Cardiac sphincter. *a* = Mid-point of lesser curvature. *b–d—b–d* = Contrasted tension on mesentery in empty and distended stomach.

### *Flatulence and Eructation.*

It has already been suggested that under conditions of distension gases may pass from the gut into the blood stream, and that, when venous stasis raises the pressure in the veins above that in the gut, gases will pass in the reverse direction. If this supposition is correct we have at least an explanation of gastric flatulence and eructation arising from a remote lesion. For example, consider the milder mimicry of the acute appendix illustrated by the "so-called" controlling appendix or the Lane's ileal kink. Both of these, by their mechanical irritation of the afferent mesenteric nerves, stimulate a reflex closure of the pylorus synchronously with vagus (motor) stimulation of the proximal stomach.[2] The resulting distension, accentuated by consequent venous stasis, reaches a point when the gastric contractions force the gas into the *œsophagus.*

FIG. 4.



*a–d—a′–d*}
*a–b—a′–b*} = Contrast in mesenteric tension with empty and distended stomach.

You are all familiar with the examination of babies suffering from hypertrophic pyloric stenosis; and you have probably noticed that during gastric contraction the closed pylorus is forced to the right of the abdomen. I have elsewhere pointed out [3] that any closed point of the gastro-intestinal tract causing obstruction to the lumen is treated as a foreign body and driven downwards by the peristaltic waves. The passage downwards is prevented by the mesentery; the tension on which, during contraction, induces pain. Since the stomach itself is devoid of sensation, the tension on the sensitive mesentery during peristalsis is responsible. The same is true of the stomach when the pylorus is reflexly closed. And this is the reason why pain soon after taking food, together with flatulence, may so closely mimic the pain of a gastric ulcer when no ulcer is present.

This raises the interesting point as to the origin of pain in gastric ulcer—a point beyond the limits of this discussion. This much, however, may be said—that *the acute and accentuated pain* in the case of an active (inflamed) ulcer is probably due to the extension of the inflammatory process to the sensitive mesentery. Tension upon an inflamed mesentery, *resulting from* the closure of the pylorus, in such cases, will give rise to greater pain, flatulence, and even vomiting at such time as the activity of the stomach is greatest. Hence the variability of the onset of pain, the intervals of freedom from pain (when the ulcer, though still existent, is not actively inflamed) and the complete relief from pain after vomiting. In my experience vomiting after food, followed by complete relief from pain, is unusual in the absence of an active ulcer or old adhesions. Flatulence and pain after food is common to both conditions. I think we should regard one as a more advanced stage of the other—the mechanism of *the symptoms being similar.*

### VISCEROPTOSIS.

We have now finally to apply these principles to a subject which has been shrouded in much unnecessary mystery. The numerous and varied complaints attributed to visceroptosis, with its known complications (such as "movable kidney" &c.) have led to the existence of two schools. The one condemns these mildly miserable sufferers as incurable, neurotic, &c., and either edges them off to the psychotherapist, treats with vaccines, or recommends a life of constantly recurring rest cures, &c. The other would appear to regard everyone with a prolapsed colon as soil for an infinite variety of energetic surgery.

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[2] Hunterian Lecture, THE LANCET, 1920, i., 1299, 1315.
[3] Obscure Intestinal Colic, Brit. Med. Jour., Feb. 18th, 1922.

Extreme views in medicine are rarely justified; and if this subject is to be approached impartially there are three undoubted postulates: (1) there are many people with pronounced visceroptosis living perfectly happy healthy lives, and free from complaint; (2) there are *many people suffering from a variety of ailments* who happen to have a prolapsed colon entirely unconnected with their complaints; (3) there are also a considerable number of subjects of visceroptosis in which this is the primary trouble, or, at any rate, plays a considerable part in the symptoms complained of. To take extreme views must obviously lead to error unless we can differentiate accurately these three classes—and here lies the difficulty and the origin of failure and discredit.

Full discussion of so wide a subject is clearly not within the scope of this paper, but, in order to render the survey more complete, I am anxious to suggest to you the principles which should guide us. The first important principle to be borne in mind is the importance of the mesentery, with its contents so vital to the life and health of the individual. It is clear that such a structure can never be, and never was intended to be, a supporting structure for the viscera.

In the adaptation to the erect posture *two main mechanisms of visceral support* have developed; and *the function of both is to protect* the delicate mesenteric contents from mechanical strain. These are:—

(*a*) *Certain fixed points* for attachment of the viscera. These are well-known anatomical facts which are familiar to you and require no elaboration. Together with these fixed points are certain whole lengths of intestinal tract which become more or less "fixed" by a normal fusion of the primitive mesentery—e.g., duodenum, ascending and descending colon. These two purely mechanical methods of adaptation to the erect posture show great variability in different individuals. This variability is sufficiently marked to suggest that the complete adaptation of the viscera to the upright position is in a transitional stage of evolution. It would follow that excessive mobility is to be regarded as incomplete development; while the presence of abnormal bands, or so-called "kinks," may in some instances be regarded as over-development of the normal process of fixation. Both defects can originate pathological processes.

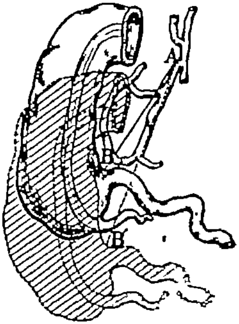
(*b*) *Intra-abdominal Pressure.*—The support afforded the viscera by normal pressure is a factor which varies with different conditions of posture, exertion, &c.; and it is self-regulating under normal conditions. Thus, when the erect posture is assumed the abdominal muscles automatically contract and afford the necessary support to the viscera. This takes place in the following way: On standing up the viscera tend to fall toward the pelvis and the mesentery gets *dragged* upon. The resulting mechanical tension stimulates the Pacinian corpuscles (sensitive organs of "touch"), from which proceed afferent impulses exciting the efferent response along the somatic nerves to the abdominal muscles. The resulting contraction of these saves the mesentery from further tension by increasing the intra-abdominal pressure and supporting the viscera. The hernial rings are closed by a similar mechanism. The Pacinian corpuscles, together with the reflexes they initiate, are to be regarded as normal means of protection of the mesentery against mechanical tension in the erect posture. The importance to each individual of the integrity of this "*musculo-mesenteric*" reflex will obviously vary with the degree of purely mechanical support—i.e., degree of fixation—afforded in any given instance, and this varies widely.

The study of visceroptosis, then, is to be divided into two groups: (*a*) results of the breakdown of the normal visceral supports, and (*b*) factors favouring such a breakdown.

(*a*) The mesentery assumes the function of visceral support and the resulting tension on nerves (afferent and efferent), blood-vessels, and lymphatics is responsible for symptoms which are often far-reaching and progressive.

*Nerves.*—These run in company with the blood-vessels and lymphatics, and, like the latter, when there is a minimum of fat and areolar tissue in the mesentery, become themselves responsible for visceral support. As we have seen in the case of inflammation, so also in mechanical stimulation, both efferent and afferent impulses arise. Direct stimulation of the efferent sympathetic inhibits the bowel and leads to stasis over the area involved; while the consequent overloading of the bowel adds to the mesenteric burden and further increases the tension. The result of the afferent stimuli is a generalised efferent sympathetic response of varying degree, leading to such remote results as general inhibition of the whole intestinal tract (especially the colon),[4] pyloric closure with consequent increase of gastric distension, inhibition of the gall-bladder with stagnation of bile and a consequent *predisposition to gall-stone formation*, &c.

FIG. 5.



In support of these views may be mentioned the regularity with which general visceroptosis is found in the subjects of gastric ulcer. This is in sharp contrast with the *majority of* duodenal ulcers. Also, in the absence of primary disease of the gall-bladder itself as a cause of gall-stones, the existence of these is practically always associated with general visceroptosis. Further, typical gall-bladder attacks (in the absence of stones) due to over-distension of the gall-bladder are exceedingly common in sufferers from visceroptosis.

Fig. 5 shows how it is that the results of *mesenteric tension* are first felt in the [illegible]-ascending colon region. Here the tension is [illegible] in the long axis of the main vessels to the [illegible] that the associated nerves very early feel the strain (*A–B—A–B*). In this region, too, we have [illegible] that the vagus will share in the general [illegible]. The result is (as we have seen in [illegible] appendicitis) that the efferent vagus [illegible] will tend to excite hyperactivity of the [illegible] secretion, patent pylorus, &c. The [illegible] only to find some factor which [illegible] sympathetic stimuli—e.g., tobacco [illegible] to appreciate how mesenteric tension (or [illegible]) in the vagus area—i.e., the [illegible] and [illegible] transverse colon—may [illegible] of vagus over sympathetic [illegible] establish a predisposition to du[illegible]. This [illegible] contrast with the sympathetic [illegible] associated with *general* visceroptosis [illegible] the necessary exciting conditions, [illegible] likely to be gastric.

*Veins.*—T[illegible] must of necessity tend to diminish [illegible] the venous [illegible] more difficult [illegible] the smaller [illegible] of the gut. Here we have an all-important factor in causing the distension and constipation associated with visceroptosis, since the necessary muscular contractions are impaired in the presence of continued venous stasis. This again is particularly marked on the right side (Fig. 5) for reasons already given. And I would emphasise this point—namely, that venous congestion arising from mesenteric tension in the upright posture is accentuated by the fact that *veins of the portal system are devoid of valves.*

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[4] [illegible] 1925 [illegible]
[5] Path[illegible] of England [illegible]
Jour., [illegible]

In support of this view, that there is a variable measure of intestinal venous stasis in sufferers from visceroptosis, it is noticeable that, where symptoms are pronounced or long standing, the small arteries in the ileocæcal region will frequently be found abnormally elongated and tortuous.

*Arteries.*—It is unlikely that any mechanical interference with the arterial supply can result directly from traction on the mesentery, but reflex vasoconstriction, arising from the generalised sympathetic stimulus, may play a part in the defective circulation of the gut.

*Lymphatics.*—Much that has been said in the case of the mesenteric veins may apply with equal importance to the lymph stream. For interference with absorption may partly account for the wasting so commonly seen in this class of case. Further, the consequent loss of fat within the mesentery accentuates the liability to mechanical interference with these vital structures under increased tension.

Finally, it is evident that the overloading of the bowel arising from inhibited muscular action tends of itself to increase mesenteric tension; and this again must aggravate the muscular failure. The bowel then becomes progressively distended and thinned—a characteristic feature. Where right-sided aching or dragging pain, relieved by rest, is *the only symptom* complained of, it will frequently be found that adventitious adhesions or bands anchor the bowel to the sensitive lateral peritoneal wall. The mesentery is thus spared, but pain results in the erect posture. It is evident, therefore, from a consideration of the pathology, that where symptoms arise from visceroptosis the condition is bound to become progressive, unless adequate treatment is adopted on lines directed towards the protection of the mesentery.

(*b*) *Reasons for the Breakdown of the Mechanism of Visceral Support.*—The primary factor is the absence of the mechanical supports already mentioned; and these have been stated to be congenital and atavistic. Under these conditions—i.e., congenital mobility of the colon—the compensatory reflex (which is almost entirely responsible for visceral support) may break down from several causes, some of which may be mentioned. Commonest among these are: (1) diminution of intra-abdominal pressure, and (2) overloading of the colon.

(1) This may occur in a variety of ways:—

(*a*) *Puberty.*—The widening of the pelvis occurring at this time is sometimes associated with the onset of aching on the right side, or by intermittent attacks of pain often accentuated just before the menstrual period. Clearly the increased pelvic accommodation will favour visceral descent, while the hyperæmia, so pronounced at this time, accentuates the liability to vascular engorgement. In sufferers from visceroptosis it is exceedingly common to find the symptoms aggravated just before the period and relieved after the onset. Further, the relief of pain in the horizontal posture is characteristic.

(*b*) *Childbirth.*—Here the widening of the pelvis, together with the impairment of the abdominal and pelvic muscles, still further interferes with visceral support and causes mesenteric tension. As we have seen, this is most commonly shown at first in the right-sided drag, so commonly complained of. Reflex effects on the intestinal tract, stomach, and gall-bladder follow later; and frequently all are accentuated at the time of the period. Frequency of micturition in the day and its absence during recumbency at night are a later indication of the descent of the kidney with venous congestion consequent on the tension on its pedicle. The onset of symptoms dating from childbirth is exceedingly common, and clearly demands attention to the abdominal and pelvic muscles as a means of restoring efficient visceral support. But when symptoms arise at or soon after puberty and the abdominal and pelvic muscles are faultless, my experience has been that symptoms almost invariably recur and are progressive. In such cases an efficient right-sided colopexy is invariably successful. It will also be required in about 60 per cent. of the second class.

If these principles are accepted it will be found that a great many valueless appendicectomies may be avoided.

(*c*) *Defective Muscular Nutrition.*—Occupations involving deficient oxygenation, chronic toxæmia from any cause, particularly when associated with constant standing, are often associated with a failure of the whole muscular system, including the abdominal and pelvic musculature.

(*d*) *Standing occupations* are often responsible for the onset of symptoms. You all know that any reflex will break down under fatigue; and it is only rational to recognise that the "musculo-mesenteric reflex" should fail under insufficient rest.

(2) *Overloading of the Colon.*—This may well initiate mesenteric tension (when fixed support is defective) and, as you know, it may arise from a variety of causes. Prominent among these are habit (commonly started in childhood); dyschezia (which I believe to be anatomical in most instances),[6] mental, improper food,[7] in some instances a gross lesion—i.e., appendix, tubes, &c. Causes are legion and I only give examples.

In conclusion, may I say that I have not attempted to deal in detail with any of the disorders mentioned because my object has been an attempt to present to you the principles involved, and to emphasise the fact that in the health of the gastro-intestinal tract (and in the symptoms of disease of that tract) the mesentery is the first consideration. This is not generally accepted in the treatment of visceroptosis; but I would ask you to give this particular question your close consideration. And, while you will appreciate that any detailed criticism of the various forms of treatment (exercises, correct breathing as advocated by McMahon,[8] indications of operation, &c.) are beyond the scope of this discussion, some general deductions are justified.

### *CONCLUSIONS.*

A great part of abdominal surgery should be directed towards the protection from damage of so vital a structure as the mesentery, whether by infection or mechanical trauma. In the latter instance a large group of disorders arise primarily from visceroptosis, whether local or general. Treatment in such cases should always be directed towards protection of the mesentery from undue strain. Sometimes this can be done by conservative measures; sometimes these can achieve no permanent improvement. And in some instances this can only be achieved by the surgical remedy of the defective mechanical visceral support.

The indications for surgical interference are a debatable question of sufficient importance to form a subject of itself. But this much may be said in conclusion. I have practised the operation of colopexy in different forms and degrees for about 18 years, in many hundreds of cases with an increasing degree of success. This is due to more accurate selection of cases with increased experience. I am quite convinced that a rejection of this simple and safe surgical measure is due either to a failure in technique, to a failure to realise the principles upon which the selection of cases should be based, or, more often, to neglect of efficient after-treatment.

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[6] Hunterian Lecture, THE LANCET, 1920, i., 1209, 1345.

[7] Lieut.-Colonel R. McCarrison: THE LANCET, 1922, i., 207.

[8] McMahon, C.: Method of Treatment of Visceroptosis, THE LANCET, 1925, i., 108.

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INSTITUTE OF HYGIENE.—The President, Sir Thomas Oliver, will receive the guests at a reception to be held at 28, *Portland-place, London, W., on* Thursday, Feb. 25th, at 8.45 P.M. The museum, which contains many exhibits of interest, will be on view, and there will be a special display of scientific apparatus and a practical cooking demonstration.

# FOCAL SEPSIS AS A FACTOR IN DISEASE.

*Being the Opening Paper at a Discussion at the Royal Society of Medicine on Feb 15th, 1926,*

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DURING recent years much attention has been drawn to focal sepsis, and we have learned how important a part it may play in the causation of disease and in the progress of a malady already present In order that we may, as far as possible, have a definite idea of what we are discussing, I propose to outline the various ways in which focal sepsis may become a factor in disease These will be illustrated by a few brief clinical sketches of personal experiences, in most of which, owing to the circumstances under which they occurred, no bacteriological examination was made.

A malady may be initiated, or its course affected, by a local infection in several different ways. First, the bacteria causing the focal infection may be discharged and conveyed by mechanical means, so as to cause extension of the disease by reinoculation. Second, the bacteria present in the original focus may overcome the local resistance and be conveyed to distant parts of the body by way of the lymphatics and the blood. Once the bacteria leave the original focus either singly or in clumps, they may be arrested by the nearest lymphatic gland and set up a lymphadenitis which may develop into an abscess. If the infection passes this barrier, three things may happen · (a) If the organisms are virulent, they may multiply in the blood and set up either an acute or chronic septicæmia. (b) If the bacteria do not multiply in the blood they may be conveyed alive to a suitable nidus where they multiply and infect the surrounding tissues. (c) If the bacteria conveyed by the blood are unable to gain a real footing anywhere, they may, by the process named subinfection by J. G Adami,[1] produce a slow but progressive atrophy with replacement fibrosis in various organs of the body. Third, the micro-organisms may remain enclosed at the seat of focal infection from which their toxins are slowly and continuously absorbed so as to cause either temporary alteration in the structure and function of the blood and other tissues or possibly permanent structural changes, such as fibrosis, in important organs.

### *Mechanical Conveyance of Infection.*

A few practical illustrations of the influence of focal sepsis will be given under the headings just mentioned. The results of the mechanical conveyance of infection are seen, in a simple form, in a case of furunculosis, in which the staphylococci are conveyed by the fingers or by the clothing from the primary boil to other parts of the skin, where reinfection takes place In open oral sepsis, due either to the decomposition of food particles or tartar deposited in the gingival trough, or to pyorrhœa resulting from chronic periodontitis, bacteria are constantly brought into contact with the tongue and pharynx, and may set up superficial glossitis or pharyngitis Infection is occasionally conveyed up Stenson's duct to the parotid gland Thus I have seen a man who was laid up with a unilateral parotitis, which persisted until it was realised that it was due to an ascending infection from a septic molar tooth situated near the opening of Stenson's duct As soon as the tooth was removed the parotid gland recovered

In both oral and nasopharyngeal sepsis many bacteria are swallowed. In a normal stomach they are usually destroyed by the gastric juice. In a small proportion of cases the resistance of the stomach is impaired and a chronic gastritis or gastric ulcer develops. A man of 58 gradually lost his appetite, the weight decreased by 3 st., and there was vomiting. When I saw him he was lying in bed, weak and emaciated, and the skin of the face and neck was pigmented, so that the symptoms were suggestive of malignant disease of the stomach. Physical examination yielded no sign of abdominal or thoracic disease, but revealed marked oral sepsis. A diagnosis of septic gastritis was made and proved to be correct, as treatment by the immediate use of an antiseptic mouthwash, removal of the teeth, and the internal administration of manganese dioxide was followed by complete recovery in the course of a few months

The infection arising from oral sepsis may pass through the stomach and cause infection of either small or large intestine A boy, who was seen some years ago, was in poor general health owing to severe oral sepsis. The relations were advised to have the teeth removed at once and were warned of the danger of delay. Unfortunately, extraction of the teeth was refused, and a few months later the boy developed severe ulcerative colitis and died. A septic gall-bladder, by discharging bacteria along the common bile-duct, may infect the bowel lower down. In the case of infection of the gall-bladder by the typhoid bacillus, the host becomes either a temporary or chronic "carrier," and so a source of infection which may set up typhoid fever in others The long duration of this focal infection in some cases is illustrated by the records of "carriers," mentioned by Prof Topley,[2] who have continued to infect the healthy for as long as 25 years. An infected but still patent appendix may cause ill-health by continually discharging its contents into the cæcum. Sir Rickman Godlee,[3] in one of the earliest papers dealing with this subject, recorded such a case in which the chief symptoms were pallor, loss of appetite, loss of weight, slight fever, and the passage of offensive motions. Complete recovery followed the removal of the diseased appendix.

Infection from the mouth may pass directly, not only to the alimentary canal, but to the respiratory organs A woman, on account of dental sepsis, had several teeth extracted while under general anæsthesia. During, or just after the operation, she unfortunately inhaled either some inspissated pus, or possibly a small fragment of an infected tooth, into a bronchus. This set up an acute local infection of the lung which, by the time I saw her, had become gangrenous and shortly afterwards proved fatal.

### *Transference of Infecting Organisms by the Blood.*

When bacteria which at first were confined to a local area find their way into the blood, a general septicæmia may result. This sequence of events has occurred only too frequently in those tragic cases in which a surgeon during an operation, or a pathologist while making an autopsy, has received a slight wound which has become infected, and the infection, spreading later to the blood, has caused a fatal septicæmia. Micro-organisms which gain access to the blood may be unable to multiply until they reach some tissue for which they have a selective affinity, and in which they can multiply sufficiently to set up a definite lesion A healthy young farmer, in the course of a quarrel, received a wound in the forehead from a tumbler which was thrown at him The wound was dressed once by a surgeon. He returned to his work on the farm, but took no further care of the wound. This became infected, probably by his hands while at work, cellulitis of the neck followed, and finally acute malignant endocarditis ended a promising career

In closed oral sepsis, such as occurs when an abscess forms at the root of a tooth, streptococci may be forced into the general circulation by the intermittent pressure exerted on the tooth during mastication. Under these circumstances the streptococci are liable to be lodged in the joints or periarticular structures. When we are confronted by an arthritis or other malady which may be caused by secondary infection from some occult focus of sepsis and in which the mouth looks harmless, let us not "forget the poisonous dregs that lurk beneath," but insist on an X ray examination of the gums. A middle-aged man, who for some time had resided in another country, consulted me on account of an early arthritis which had already involved several joints. He assured me that his teeth had been well looked after and were in good condition. On inspection the gums looked healthy, but many of the teeth were crowned with gold. An X ray examination revealed the presence of abscesses at the roots of several teeth. Removal of the affected teeth was at once followed by rapid improvement in the arthritis.

Sir William Willcox [4] has shown the frequent relationship between oral sepsis and arthritis, and agrees with Dr. A. P. Beddard that 90 per cent. of cases of rheumatoid arthritis in man are due to this cause. Rosenow [5] has shown that muscular fibrositis may be caused by the lodgment of streptococci of low virulence in the capillaries near the tendinous insertions of the affected muscles. This is apt to occur when the original focal sepsis is due to the *Streptococcus viridans* and other non-hæmolytic strains, the actual lesion in the muscle being due to subinfection. The relationship between oral sepsis and severe secondary and pernicious anæmias has been shown by Dr. William Hunter[6] to be of frequent occurrence. Focal sepsis is, however, not the only cause of these conditions, as pernicious anæmia develops in persons who have been toothless for years and in whom no septic focus can be found. In connexion with the affinity of streptococci for the joints and periarticular structures, the work of Rosenow may again be referred to. He showed that streptococci cultivated from a septic focus in man had an elective affinity for the same tissue in a healthy animal as that from which they had been taken. Thus, streptococci taken from a cholecystitis were, on inoculation, much more likely to reproduce the same condition than any other lesion. He also found some evidence in favour of the view that the toxins produced by the streptococci may have a similar selective action on the tissues. Rosenow suggests that this selective action may depend on the amount of oxygen and food-supply available in different parts of the body as each strain of streptococci has its own special requirements. This peculiarity may be one of the factors which, fortunately, enable many persons to resist secondary infections and the ill-effects of toxæmia altogether, or, at any rate, for long periods. This resistance, in the case of oral sepsis, for example, may partly be due to a tolerance acquired by the long-continued presence of large numbers of streptococci in the mouth and in the bowel of normal individuals.

Sir Frederick Andrewes [7] has drawn attention to Dr. Gordon's examination of the buccal secretions which, in healthy human beings, were found to contain from 10 to 100 million streptococci to the cubic centimetre. In the bowel, where the *Bacillus coli* group and streptococci predominate, Houston has found the latter may exceed the former and be present to the number of 1000 million per gramme of the fæces. When we recollect that one-quarter of the fæces consists of bacteria, a large proportion of which are dead by the time they are voided, we can realise how great is the natural resistance to such inhabitants as long as they are outside the tissues. When ill-effects occur they are due to the virulence and numbers of bacteria which cause the development of focal sepsis, or to a lowering of the resistance of the host, or to a combination of both factors.

The joints are not the only structures liable to suffer from metastatic infection from the gum or the tonsil. During an epidemic of streptococcal tonsillitis in a Lancashire town I saw a young man suffering from acute nephritis which had followed an attack of tonsillitis. Streptococci were present in the urine, so that the nephritis was evidently secondary to the focal sepsis in the tonsil. This epidemic affected a considerable number of people but, as far as I could ascertain, nephritis was quite an exceptional complication. Not only may metastatic infection originate from a septic focus, but it may continue to be active as long as the primary focus is allowed to remain. In these cases it seems probable that the secondary infections are being continually reinforced or renewed from the primary focus. A striking example of this persistent effect of focal sepsis in a case of rheumatism has been communicated to me by Dr. C. P. Lapage, who will publish full details. A boy, aged 10, continued to suffer from recurrent attacks of rheumatism with sore-throat, fever, severe mitral endocarditis, and unusually large subcutaneous nodules. Treatment by rest, salicylates, and change of climate failed, and so, finally, the tonsils were removed. After this there was no recurrence of sore-throat, the nodules disappeared, and cardiac compensation developed so well that he was able to go to school five years after the first illness. It is important to remember that if the focal sepsis remains undetected and unrelieved it may continue to exert its evil influence on health over long periods. Godlee described a case in which several sequestra, which were ultimately discovered in the femur, had caused recurrent abscesses at intervals for 40 years.

### *Absorption of Toxins from a Septic Focus.*

So far, the relationship between focal sepsis and the disease attributed to it is fairly clear. This relationship is more difficult to prove when there is no actual metastatic infection, but the morbid process is due to the action either of exotoxins formed locally and conveyed to other parts of the body, or of endotoxins liberated in cases of subinfection during the dissolution of the bacteria lodged in the tissues. In many cases it is not possible to distinguish between these two processes. One form of disease, amyloidosis, affords an example of definite tissue changes resulting from the continued absorption of toxins from a septic focus. A boy, whom I saw with a country practitioner long since deceased, had an empyema unrecognised until it began to leak through a small orifice just below the left nipple. The only treatment which had been attempted was the insertion into the sinus of a piece of the fine rubber tubing commonly used in association with Southey's tubes, which only allowed the pus to escape in drops. The liver and spleen were greatly enlarged owing to amyloid infiltration. Efficient drainage of the empyema was followed by recovery, and, though I did not see the boy again, I was informed that ultimately the enlargement of both liver and spleen disappeared. Godlee [8] recorded a similar case in which a small but imperfectly drained empyema caused lardaceous disease of the liver and kidneys, with marked clubbing of the fingers. Free drainage led to the closure of the empyema, and this was followed by disappearance of the clubbing of the fingers and of the lardaceous disease, except for an occasional slight albuminuria. In another of his cases, a patient with long-standing empyema had refused operation and pulmonary osteo-arthropathy developed. This condition disappeared after the empyema had ruptured and discharged through a bronchus. Chronic ill-health or severe and acute illness may be due to the absorption of toxins from an unsuspected source, and Godlee showed the importance of hidden drops of pus: "the unseen pus that walketh in darkness and wasteth at noonday."

It is remarkable that even a large septic focus may be the unsuspected source of an illness. This was well illustrated by the case of a man who was acutely ill with a high and irregular temperature and other indications of a severe toxæmia for which no cause had been found. He had a cystic goitre which had been present for a long time, but had caused no special inconvenience. On examining this patient I found that the goitre yielded a resonant note on percussion, and suggested that this curious sign was due to infection of the cyst by the *Bacillus coli*, which is a gas-forming organism, and that this local infection was the cause of the toxæmia. I know it may be objected that there is as yet no definite proof that the *B. coli* produces exotoxins. It should, however, be remembered that the existence of streptococcal exotoxins has only been recently proved. When the cyst was opened it was found to contain gas and pus which gave the characteristic smell which indicates the presence of the colon bacillus. No bacteriological examination was made, so that there may have been a mixed infection, but the rapid recovery which followed drainage of the cyst clearly indicated the relationship of the infected cyst to the illness. In cases of oral sepsis the disappearance of anæmia, lassitude, and other signs of toxæmia on the removal of septic teeth, before the insertion of artificial dentures, is regarded as sufficient evidence that the ill-health was due to sepsis and not to dental deficiency.

While mentioning the beneficial results which usually follow the removal of a septic focus, it may be pointed out that there may be more than one focus, and also that focal sepsis may not be the only cause of the symptoms in any particular case, so that other foci and conditions must be looked for if the expected improvement does not follow the removal of a septic focus. The treatment of a septic focus is not altogether free from danger. An acute temporary exacerbation of the symptoms frequently follows the removal of septic teeth, owing to the absorption of an extra dose of bacteria and their toxins during the operation. Occasionally this has been followed by hæmic infection and fatal septicæmia. Godlee mentions cases where the opening of an abscess, which up to the time of the operation had caused no serious disturbance of health, was followed by a fatal result.

We know very little of the effect of focal sepsis on the pregnant woman and the unborn child. The results of dental sepsis in the nursing mother and her child have been described by H. Waller.[8] He shows that the secretion of milk may be diminished by one-half, so that the child's weight remains stationary or increases very slowly. In addition, the child shows dislike of the milk and is sick. After removal of the teeth, lactation increases and the child flourishes. This ill-effect is apparently exerted by toxins secreted in the milk, as bacteriological examination of the milk was negative. Waller found that this wasting and vomiting in breast-fed children was due to oral sepsis in the mother in 160 out of 200 cases.

The relationship between focal infection and diseases of the skin, which has been recently reviewed by Dr. H. Leslie Roberts,[9] cannot be dealt with here, nor can the relationship of sepsis to certain forms of glycosuria.

The endocrine glands are not very susceptible to the influence of focal sepsis. In the course of acute rheumatism the thyroid gland may be enlarged and tender. I have seen exophthalmic goitre develop directly after an attack of acute rheumatism, before the patient left the hospital, but this sequence is rare. H. Vincent has, however, observed both exophthalmic goitre and myxœdema as sequels of acute rheumatism. Billings[10] has observed cases of exophthalmic goitre with dental or tonsillar sepsis which rapidly improved on removal of the sepsis. I have seen very few cases of disease of the thyroid gland in which focal sepsis could be regarded as the cause of the malady. In only two of a series of 300 private cases of exophthalmic goitre was such a focus found.[11] In cases of hyperthyroidism and exophthalmic goitre focal sepsis may aggravate the condition or retard recovery. Marked improvement follows removal of sepsis in these cases, but the symptoms do not disappear, as one would expect if the sepsis had been the prime cause of the thyroidal disease. The pituitary and suprarenal gland are even less susceptible. Acute pancreatitis may follow oral sepsis, possibly by way of an ascending infection from the bowel.

In the present discussion it would carry us too far afield to consider the influence of what may be called systemic, rather than focal, infection in disease, though the modes of exerting such influence are similar to those we are considering. Under the heading of systemic sepsis may be included infections of the bronchi, bile passages, and genito-urinary organs which may lead to distant lesions such as gonorrhœal rheumatism. For the same reason the results of the absorption of toxins from the alimentary canal in cases of intestinal stasis is beyond the scope of the present discussion. I should like, however, to mention in passing that, as far as my own experience goes, the latter condition is much less frequently a cause of disease than has been stated by some writers. In fact, excluding examples of gross organic disease or malformation, I cannot recall a case in which excision of any portion of the bowel was necessary in order to remove a possible source of toxæmia.

### *Summary.*

The present situation may be briefly summarised by stating that the most frequent sites of focal infection are to be found in the head, in the diverticula of the alimentary canal, and in the genito-urinary organs. The bacteria commonly concerned in these infections are nearly all micrococci; streptococci of various strains, staphylococci, pneumococci, and gonococci. To these may be added the colon bacillus and other members of the same group, and on occasion various other bacteria may play a part. The maladies which are most likely to result by the direct mechanical conveyance of bacteria from a focal sepsis are infections of the skin, alimentary canal, and respiratory passages. Hæmic infection or subinfection and toxins conveyed by the blood may cause septicæmia, malignant endocarditis, secondary and pernicious anæmia, acute and chronic arthritis, neuritis, fibrositis, certain diseases of the skin, and occasionally inflammation of either secretory, incretory, or excretory glands.

### *References.*

1. Adami, J. G.: Brit. Med. Jour., 1914, i., 177.
2. Topley, W. W. C.: THE LANCET, 1910, ii., 2.
3. Godlee, Sir R. J.: THE LANCET, 1903, ii., 1551.
4. Willcox, Sir W. H.: Brit. Med. Jour., 1921, i., 806.
5. Rosenow: Jour. Amer. Med. Assoc., 1915, lxv., 1687.
6. Hunter, W.: Oral Sepsis as a Cause of Disease, 1900 and 1921.
7. Andrewes, Sir F. W.: THE LANCET, 1900, ii., 1416.
8. Waller, H.: THE LANCET, 1916, ii., 785.
9. Roberts, H. Leslie: Brit. Jour. of Dermatology and Syphilis, November, 1921.
10. Billings, F.: Jour. Amer. Med. Assoc., Sept. 13th, 1913, p. 819.
11. Murray, G. R.: Brit. Med. Jour., 1922, ii., 900.

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# THE TREATMENT OF RODENT ULCER

## (BASAL CELL EPITHELIOMA), WITH ESPECIAL REFERENCE TO RECURRENCE.

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THE term "rodent ulcer" has become established in this country by long usage, but it is essentially a bad one. It tends to distract attention from the real nature of the condition which it purports to describe. The problem of cure is presented as one concerned with the healing of an ulcer, instead of the eradication of a malignant neoplasm.

The rodent is usually, but not always, a horizontally extended tumour—originating in the sebaceous glands, sweat glands, or hair follicles—which tends at a comparatively early stage to surface necrosis. Occasionally, however, a definite tumour appears. This takes the form of a small flattened lump, projecting perhaps an eighth of an inch above skin level. It is covered by normal epithelium, and may progress slowly for months or years without ulceration. In this type it is obvious what we are dealing with—it is a basal cell epithelioma pure and simple; but we should learn to regard all rodents equally as genuine new growths. Despite the fact that basal cell epithelioma does not tend to metastasise, and that its progress for a long time may be slow, it does recur with much persistence; and no one who has watched the terminal stages of an unsuccessfully treated case can doubt that it is, in the full sense of the word, malignant.

Up to the end of the nineteenth century there were practically only two ways of treating rodents—by surgical excision and by caustics. Since then it has become possible to cause the disappearance of these growths by a number of methods—X rays, radium, carbon dioxide snow, "ionisation," and the diathermic cautery. Cosmetic results have been greatly improved, but, despite this wide choice of means, the percentage of recurrences, so far as can be ascertained, is substantially unaltered.

### *X Ray Applications.*

The remarkable manner in which basal cell epithelioma melted away under X ray applications led the early workers to believe that an almost magical cure had been discovered. Within a year or two, however, recurrences were reported. At this time it was held that X rays killed malignant cells while damaging to a less degree the normal tissues. This is the doctrine of selective lethal action, which has been responsible for both good and evil in the history of radiotherapeutics. Looked at from the point of view of this theory, recurrence was regarded as evidence of insufficient initial dosing. For some time it was not possible greatly to increase the dose, as the soft unfiltered rays then in use soon caused irritation if pushed. Presently came the aluminium filter, and apparatus was built to give hard rays. Optimistic predictions were made to the effect that rodent ulcer would now really be cured, as it had become practicable not only to give much heavier doses, but to attain approximately equal irradiation of all cells to a depth of several millimeters.

Nevertheless, the recurrence rate continued much as before. Treatment up to this point had been by divided doses. In 1911 J. F. Gaskell published some researches on the effect of X rays upon chick embryos, in which he showed that, in order permanently to stop development, a certain minimum quantity, which he called the "critical dose," must be administered. This varied according to the degree of metabolic activity, and any lesser dose, or division of the critical dose, was without effect. I suggested, in a paper read before the Radiology Section of the British Medical Association at Liverpool in 1913, that the principle of the critical dose might be applicable to the treatment of rodent ulcer; and, in the brief time before the reading of this paper and the outbreak of war, I endeavoured to put into practice the "critical dose" in the treatment of basal cell epithelioma.

I found that a concentration of dosage produced a smart reaction, followed by rapid healing. The war intervened, and attempts to trace cases in 1919 were only partially successful. So far as they went they showed that recurrences had occurred in several instances. Clinical experience since then has led me to believe that, while concentration of dosage gives good results in many cases and is a convenient method, it affords no guarantee against return.

### *Radium Treatment.*

Radium treatment has gone through much the same phases—first, the prolonged application of small quantities of unscreened radium; later, short treatments by large quantities heavily filtered. Here, again, no panacea against recurrence has been found. Not only do recurrences occur with any form of radiation treatment, but, as a rule, they yield slowly, if at all, to further application of the same type of radiation. On the other hand, a method which is, in essence, stimulative, as with so-called ionisation with zinc, may effect a cure. These facts have been obvious for many years, yet some writers continue to preach the doctrine of the lethal dose. It was revived and preached with the fervour of a *Jehad* by the Erlangen School in 1921, but is now falling into disfavour even in the country whence it was so fiercely promulgated. I myself realised, even when advocating an attempt to find a "critical dose," that stimulation of the normal tissues counted for a good deal in any "cure" of cancer by X rays. That such rays have a directly depressant action upon malignant cells is certain; but the more I see of radiotherapy in cancer, the more am I inclined to stress the importance of stimulation of the normal tissues as the chief factor in any non-surgical cure. An appreciation of the fact that the cause of the disappearance of a basal cell epithelioma under radiation treatment is in the main due to an excitation of normal defence mechanisms makes clear the futility of attempting to give "lethal doses," and points the way to the proper treatment of recurrent growths.

It appears to be a physiological law that living cells eventually become "stale" to the frequent repetition of a given stimulus. It is also true that cells in this condition of staleness may nevertheless respond quite well to an excitant of a somewhat different nature. What I may call the *principle of the varied stimulus* is a most important one in medicine, and its application in the case of recurrent rodent ulcer is productive of excellent results. Neglect of it, on the other hand, leads to disaster. I regret to say that even now one frequently comes across cases in which, in the face of the most definite failure of response, X rays or radium have been persisted in for months—with the result that the capacity to react to any stimulus has sometimes been destroyed. I am fully aware that recurrences may respond to the same agent which originally succeeded; but if the response is going to be satisfactory the fact is evident within a few weeks. Persistence beyond a very short period is, in my experience, a grave error of judgment. In non-malignant cases, such as lupus, obstinacy and ignorance disguised as perseverance may actually cause the lesion to become cancerous, and thus discredit is cast upon X ray therapy in general.

### *Resensitisation.*

X rays and radium have such advantages over other forms of treatment as regards cosmetic result and painlessness of application that there is a great temptation to try them again in case of a recurrence. The patient, also, is generally anxious to have again what he found so successful upon the first occasion. To yield to these seductions is harmless, provided a strict time limit is observed. But what is to be done if, at the end of a month, there is no improvement —or if the condition, having responded for a time, ceases to progress favourably? It is of vital importance to recognise that the tissues must be treated by a different stimulus, or "resensitised" to the original stimulus before any further progress can be made.

*Change of Stimulus.*—A rodent ulcer which has ceased to respond to hard X rays or to the gamma rays of radium may sometimes be started off again in the right direction by rays of widely differing frequencies—e.g., by soft X rays, or even by ultra-violet rays. Instead of changing the stimulus, we may discontinue the radiation treatment for a time, meanwhile seeking by some means to resensitise the tissue cells—i.e., so to alter them that they become again capable of responding to the original radiation.

*Resensitisation.*—One of the best means of restoring response is surgical scraping, carried to a point where free bleeding results. It would appear as if prolonged raying used up certain essential substances in the tissues; but that a fresh blood-supply restores these constituents and enables further response to take place. If curettage is done, it is very important to begin X rays immediately upon the raw surface, and to clean the wound every day from sloughs or coatings of congealed pus. Treatment should be by small doses three times a week until healing has occurred. The scraping should extend well beyond the actual ulcer, any raised edges being levelled.

Surgical curettage is suitable only in the case of small rodents in situations where a local anæsthetic is alone required. In selected cases freezing with carbon dioxide snow serves the double purpose of producing a fleeting loss of sensation—which, however, lasts long enough for the curette to be used—and producing a smart reaction which in itself is helpful. If a general anæsthetic is necessary, it is much better to use the diathermic cautery. To this I shall refer later.

An alternative method of resensitisation is to "ionise" with zinc or copper. It is held by some that there is a relationship between potassium starvation in the cells and malignant multiplication; and to add some potassium salt to the solution, for use under the positive pole, can at least do no harm. Interest in the effect of secondary X radiations from metals first led me to try this procedure in the year 1912. The ulcer was ionised with a view to depositing in it fine particles of zinc or copper, which were to *act as sources of secondary radiation* when excited by an X ray tube. They were supposed to give rise to *pandrastic* rays within the tumour—i.e., to rays issuing in all directions from numerous points. Subsequent investigation has cast doubt upon this theory, but there is no question but that the practical results are often brilliant. It now appears to me probable that the galvanic current itself in some way restores the power of the normal cells to respond to radiation—perhaps, in part at least, by provoking an inflammatory reaction When ionisation plus X rays succeeds, the cosmetic results are all that can be desired.

### *Diathermic Cauterisation.*

The treatment thus indicated of recurrences by radiation, even when procedures aiming at resensitisation are carried out, should not, in my opinion, be tried for more than two months. The ultimate resort is destruction by the diathermic cautery. This always necessitates a general anæsthetic. Ether may be used provided that the bottles, &c, are removed to a safe distance during the actual progress of the operation.

The method used should be thermo-coagulation, and not fulguration or sparking. I am personally in the habit of placing the cautery in position before the current is turned on. The resistance should be placed at its maximum—i e, the current at its weakest—and the lever very cautiously advanced Unless working with an apparatus with which one is very familiar, it is desirable to test first upon a piece of meat, and to mark a place upon the resistance beyond which the assistant must in *no circumstances* move the lever. The capacity to decide rightly how much to do in a given case can be acquired only by experience Personally, I have no hesitation in thus treating growths even when they are in close proximity to the eyes Involvement of the eyelid itself is not always a bar to successful treatment by diathermy. Reaction in the treated area and its surroundings is often alarming upon the day following the use of the diathermic cautery; but in this general disturbance lies much of the value of the procedure Nor is the invasion of superficial layers of bone a contra indication. Such layers may be devitalised, and are then either thrown off within a few months, or remain in statu quo for long periods. Some time ago Dr E P. Cumberbatch showed us at a meeting of the Electrotherapeutic Section, Royal Society of Medicine, a case of epithelioma of the scalp, which had been treated many years previously by diathermy An area of necrosed bone about the size of a shilling was visible at the vertex of the skull It gave the patient no trouble, and the disease had not recurred.

In the case of subjects in good general health, for a basal cell epithelioma to have reached the stage of bone invasion generally argues carelessness or fear on the part of the patient. We cannot prevent the recurrence of rodents, even when they are treated early and in the best manner possible. But the free interval should be one of years, and a return, if it does occur, ought to be dealt with immediately upon the lines above suggested This demands coöperation between patient and doctor When such coöperation is forthcoming, I am firmly convinced that the terrible ravages which are still sometimes seen as a result of this disease need never occur.

I should say, almost never. For to this optimism there is *one exception*. The control of any form of cancer depends ultimately upon the stimulation of natural powers of resistance, local and general. In a healthy man the defensive mechanisms, suitably evoked, are always capable of dealing with one small malignant focus. But when the victim is the subject of some intercurrent disease, it may be quite impossible to stop the spread even of a small rodent. A basal cell epithelioma which is healing well under suitable therapy may, in the presence of a severe attack of influenza, suddenly run amok. Such unfortunate cases call for the utmost skill and care in deciding what shall be done. When the illness is acute it is probably best to suspend local treatment until constitutional recovery has taken place, and then deal radically with the growth by diathermy. In the case of chronic debilitating complaints, it is only too probable that the rodent will continue to spread in spite of anything that we can do; but treatment of the whole body by various forms of light may help in some cases.

*Cosmetic Results*—The best results from the point of view of appearance are those where some form of radiation has alone been used to effect a cure This is, no doubt, due to the fact that radiation does not add anything to the destruction which has already occurred as a result of necrosis of tumour tissue. Repair commences at once, whereas all other methods in greater or less degree destroy some of the healthy tissues In any but very large growths the scarring which follows a properly carried out diathermic cauterisation is, however, remarkably small. A great deal depends on care in after-treatment. It is essential after diathermy to secure a healthy raw surface, just as is the case after curettage. After the first fortnight loose sloughs should be from time to time gently removed by forceps, and it is most important to treat the granulating surface by X rays. If there is any tendency to sluggishness an occasional erythema dose of ultra violet rays will expedite healing.

### *Summary.*

(1) Radiotherapy is the treatment of election for "virgin" rodents (2) In the case of a recurrence, rays of a different wave-length from those originally used should be employed. (3) If improvement is not manifest within a month some method of resensitising the tissues, as by curettage or ionisation, should be resorted to, after which radiation may again be given a trial (4) If the above methods are not producing definite and continuous improvement at the end of two months the diathermic cautery should be employed This method owes its success not merely to destruction of cancer cells, but to the sharp reaction produced in the surrounding tissues. (5) If all recurrences are dealt with promptly there should be no need for surgery in the ordinary sense of the term. When, however, the recurrence has already assumed large proportions, it may be necessary to invoke the aid of the plastic surgeon to make good what has been destroyed

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A CASE OF

# ACUTE FATAL MEDINAL POISONING,

WITH NOTES ON THE ILL-EFFECTS OF THE MEDINAL HABIT

BY E. STOLKIND, M.D. (MOSCOW AND SIENA).

MANY cases of veronal poisoning have been recorded, but I have been unable to find a single record of fatal poisoning with medinal The following case is the more interesting in that the patient had taken medinal for insomnia three, four, and sometimes five times a week for more than eight years. He had become accustomed to the drug, and was thus obliged to take increasing doses Another remarkable feature of the case was the ill-effects of the medinal habit (medinalism) on the patient's physical and mental condition. Medinal is the sodium salt of veronal (diethyl barbituric acid). It is soluble in about six times its weight of water and has a bitter taste. It is eliminated very slowly, mainly by the urine.

I first saw the patient in the summer of 1916. He was a retired literary man of 61, who came of a healthy family and was a good swimmer. Once in 1916 I saw him in the morning when he did not wake up as early as usual. On being roused he resembled a drunken person; his speech was indistinct, thick, and slightly stammering. At the time this condition was due to the cumulative action of medinal, which he had often taken during the preceding weeks in the same doses. He refused to give up the drug and went on taking it for seven and a half years.

In spite of a good appetite he continued to waste and even his muscles became thinner and thinner. He was very anæmic. He passed water once or twice in 24 hours, and in small quantity—about 10 oz. He became weaker and weaker, and during the last year he was very exhausted, often being unable to perform a little physical exercise. He suffered frequently from palpitation. There was ataxy, resembling that of a drunken person, with tremor of the extremities and of the tongue.

Most remarkable, however, was the change noticed in his mental condition. His intellectual weakness gradually increased. He seemed continually depressed and was frequently very excited and worried over trifles. His thinking, speaking, and writing capacity, as well as his actions, grew slower and slower. To find a proper expression for his thoughts took him more and more time. The speech was often indistinct, not seldom stammering, whereas before he had been a good public speaker. During the last months his memory got worse; it became difficult for him to remember anything. At last he became slow in comprehending what was said to him, and often, after taking medinal, he was incoherent, and sometimes had delusions.

On Dec. 10th, 1924, he went to bed at about 11 P.M., but did not sleep till about 4 A.M., after taking medinal. In order to avoid constipation and prevent toxic symptoms he was in the habit of taking a teaspoonful of an alkaline salt immediately after the medinal. (He took part of a teaspoonful of the drug from the bottle.) On the morning of Dec. 11th I arrived, eight hours after the poison was taken. I found on the table two bottles of medinal, but none of the alkaline salt. Exhausted and drowsy, the patient had taken a large overdose of medinal instead of the salt.

I found him in a deeply comatose state. The pupils were small and later became smaller. They did not react to light and there was no corneal reflex. At first the conjunctival reflex was present, but later it disappeared and the sensory system was completely paralysed. The lips were cyanosed and there was a large amount of mucus in the mouth. The skin became moist and the extremities were not cold. Breathing grew more and more stertorous; at first there were 24 respirations per minute, on the next day they were 45. On the first day the pulse was weak, regular, 96 per minute, but on the next day the rate rose to 150. The temperature was normal; the urine had to be withdrawn. All my efforts to rouse the patient from stupor—by washing out the stomach, administering hot coffee, injecting various stimulants hypodermically, &c.—did not succeed, and he gradually became worse, showing signs of congestion and œdema of the lungs, and died 39 hours after taking the medinal.

A *post-mortem examination* was made by Dr. C. T. Parsons with the following findings: Body wasted; skull thin; pia-arachnoid thickened and congested. Calcified atheroma at the base of the aorta. Cerebral arteries macroscopically normal. Both lower lobes of the lungs deeply congested and œdematous. Some petechiæ in the mucous coat of the stomach. Spleen very soft. All other organs normal.

Examination of the urine with Millon's reagent, &c., showed the presence of medinal.

### *Conclusions.*

(1) Medinal can cause fatal poisoning in the same way as veronal. (2) The cumulative toxic effects of medinal are the same as those of veronal. (3) The medinal habit (chronic medinal poisoning or medinalism) has the same toxic action and produces the same after-effects on the physical health and mental condition of the patients as veronal poisoning. It produces almost the same ill-effects on the character of the patients as morphine.

Hampstead.

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Clean Milk and Food Exhibition.—The Minister of Health will open a Clean Milk and Food Exhibition at Christ Church Hall, Edison-road, Crouch End, on Tuesday, March 2nd, at 2.30 P.M. The exhibition, which has been arranged by the medical department of the borough of Hornsey and will last four days, is to be purely educational and will include special morning sessions for school-children.

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# UNEXPECTED MATERNAL DEATHS OCCURRING DURING PARTURITION AND EARLY IN THE PUERPERIUM.

By J. St. George Wilson, *M.C.*, Ch.M. Liverp., F.R.C.S. Eng.,
ASSISTANT SURGEON, LIVERPOOL MATERNITY HOSPITAL; HON. SURGEON, SAMARITAN HOSPITAL FOR WOMEN; HON. ASSISTANT GYNÆCOLOGICAL AND OBSTETRIC SURGEON, ROYAL INFIRMARY, LIVERPOOL;
AND
ERNEST GLYNN, F.R.C.P. Lond.,
PROFESSOR OF PATHOLOGY, UNIVERSITY OF LIVERPOOL.

(*From the Thompson Yates Laboratory, University of Liverpool.*)

Three years ago one of us described six cases in which death not only occurred unexpectedly, but also the cause remained undiscovered post mortem until after a bacteriological or histological examination. Four were cases of acute pneumococcal septicæmia (two in children), the fifth in an infant was early tuberculosis with a terminal infection of *Streptococcus fæcalis*; the last was also in an infant who died after tenotomy, apparently from status lymphaticus, but really from acute encephalitis (Glynn and Dun). We now describe two cases of unexpected death associated with pregnancy in which the true cause was again only determined after investigations subsequent to the post-mortem.

### *Death during Parturition from Acute Streptococcal Septicæmia following the Induction of Premature Labour.*

Case 1.—E. J., aged 42, a 6-para, 37 5/7 weeks pregnant, was admitted on March 6th, 1924, for the induction of premature labour. At 4 P.M. two bougies were inserted into the uterus with the usual antiseptic precautions. On March 7th, at 6 A.M., the patient's temperature rose to 101·2° F., but during the next two days it was normal. On the 9th the membranes ruptured. At 6 A.M. on the 10th the patient's temperature was 99·4°. At noon she was given 0·5 c.cm. of pituitary extract intramuscularly as labour had not commenced and an examination revealed no dilatation of the cervix. At 12.15 P.M. she complained of severe abdominal pain, and a quarter of an hour later had a rigor lasting for 20 minutes followed by a rise of temperature to 102·6°. At 1.15 P.M., as she was restless and frightened, a hypodermic injection of omnopon, gr. 2/3, and scopolamine, gr. 1/150, was administered. At 2.15 P.M. her respirations were slow and shallow, and she rapidly became pulseless and died. Just before death the fœtal parts were plainly felt through the abdominal wall, and it was believed that the uterus had ruptured.

The autopsy and bacteriological investigation were made three hours after death by Dr. D. Riding. All the organs appeared normal except the spleen, which was slightly enlarged, pale, and soft; permission to examine the brain was refused. The uterus was removed intact with the fœtus and sent to Prof. Blair Bell's department.

*Bacteriological Investigation.*—The spleen-juice and heart-blood were examined immediately after the post-mortem. Both contained large numbers of streptococci in pure culture. This organism most resembled *Streptococcus mitis* (Hohlman). It was bile-insoluble, and killed in ten minutes at 60° C. It gave acid and clot in milk, acid in maltose, saccharose, glucose, and lactose broth, but no change in mannite broth or gelatin. Eighteen hours old broth cultures mixed with a 5 per cent. suspension of human red blood-corpuscles produced methæmoglobin. Two mice were inoculated intraperitoneally with 1 c.cm of an 18 hours broth culture; both died in 12 hours.

*Histological Investigation.*—Sections of liver, kidney, and spleen showed slight cloudy swelling, and some blood-pigment lying free in the blood-vessels or occasionally inside the leucocytes. The placenta was normal. A section of the decidual portion of the uterus showed acute inflammation—namely, vascular congestion and extensive leucocytic exudation; portions of the decidua and of the superficial layers of the subjacent uterine muscle contained much blood-pigment. No bacteria were seen except in the decidua and fragments of amnion; here diplococci occurred either singly or in clusters.

*Comments.*—The bacteriological examination, three hours after death, proves that the patient died with, and almost certainly from, streptococcal septicæmia.

The total duration of the septicæmia was between 4½ and 2 hours, for the temperature was normal at 10 A.M. and the rigor began at 12.15 P.M. This is very short. One of us, however, has described the case of a boy of 15 who died after 6½ hours illness from an infection with the pneumococcus (Glynn, 1913). Again, the infant referred to before, who died from a *Streptococcus fæcalis* infection, was acutely ill for only 7 hours. The short duration of septicæmia in a woman seems especially remarkable, as the *in vitro* test showed that the streptococcus was not really hæmolytic like *S. pyogenes*. The animal tests, however, proved that the streptococcus was very pathogenic for a non-hæmolytic one, as these organisms do not usually kill mice by the technique we employed (Glynn and Digby, p. 55). The presence of diplococci in the decidua indicates that the streptococcus entered the blood stream through the uterus. This may have occurred before midday, when the pituitary extract was given. The abdominal pain and rigor shortly after its administration suggest that the uterus contracted as a result of the drug and gave the patient a severe auto-inoculation.

### *Death Early in the Puerperium due to Delayed Chloroform Poisoning.*

CASE 2.—E. H. V., aged 29, a primigravida, commenced labour at full term on the afternoon of March 9th, 1924. She was still undelivered on the 12th. The os was three-quarters dilated, a hand presented with the head but the membranes were intact. The patient had chloroform "on and off" from 8 P.M. to midnight during an attempt at version, which failed. The chloroform was administered by a special mask, the total amount used being 12 drachms, no more than 3 drachms being given during any hour. The patient's reflexes were never abolished, and she quickly came to when the anæsthetic was stopped. At 11 P.M. her temperature was 103° F., and on the advice of Dr. Leith Murray she was removed to the Liverpool Maternity Hospital at 1.30 A.M. on the 13th. On arrival she was conscious, her temperature was 98°, and pulse 100. At 5.30 P.M. her pulse and temperature were rising and the fœtal heart was not heard; perforation was therefore performed by J. St. G. W. and the fœtus extracted. During this operation, which lasted half an hour, ether was given by the open method with the addition of a few drops of chloroform. On the 14th the patient's temperature was 97°, and the pulse-rate varied from 120–112. The pulse was weak and small. She vomited frequently during the day, most of the vomit being "coffee-ground." There was no jaundice. She was given rectal salines with glucose. On the 15th the previous 24 hours' urine was 2 oz. only, and she had passed none during the night. The patient was getting drowsy and was still vomiting "coffee grounds." The temperature was 97·4°, and the pulse was 100, weak and small. An intravenous injection of 15 oz. of 2 per cent. solution of sod. bicarbonate was given. The patient died at 1.35 P.M. on March 15th, 65½ hours after the first administration of chloroform.

The *post-mortem examination* was made by Dr. Riding. The uterus contained 1 oz. of sanious fluid, the endometrium was red and shiny, and hæmorrhagic areas were present in the uterine wall. The vagina was extensively lacerated and gangrenous in places. The right ovarian vein contained a thrombus, extending up to the vena cava. The liver was normal in size and firm, but rather pale; it showed a difference in colour between the centre and the periphery of the lobules. The spleen was enlarged and diffluent.

*Histological Examination.*—The pathological changes in the liver were very definite. There was extensive necrosis of the inner two-thirds of the hepatic lobule and extensive fatty "degeneration" of the outer third. The fat was most abundant at the margins of the necrotic areas; it was deposited in small droplets; the more or less degenerated cell nucleus was central, when present. The bile-ducts were normal. There was no round-celled infiltration and no fibrosis. A small amount of blood pigment was seen in the leucocytes lying in some of the blood-vessels, but there was no bile-pigment, leucin, nor tyrosin. Neither fibrin nor bacteria could be demonstrated by specific stains. The kidney showed a moderate amount of cloudy swelling and very extensive fatty "degeneration" of most of the secreting tubules.

*Comments.*—The clinical history and pathological changes prove that the patient died from delayed chloroform poisoning; though jaundice was absent, it does not always occur. The toxic effect of the chloroform may have been accentuated by the septic condition of the vagina. Death was not due to eclampsia because there were no convulsions. Besides, the changes in the liver were unlike those met with in this condition, for there was no *peripheral* necrosis, no hæmorrhage, and no fibrinous thrombi, while the fatty "degeneration" was too extensive.

We are indebted to Prof. Bell and to Dr. Murray for permission to report these two cases.

*References.*—Glynn, E. E., and Dun, R. C.: THE LANCET, 1923, i., 1302. Glynn: Quart. Jour. Med., 1913, vi., 391. Glynn and Digby, Lettice: Med. Res. Council Report, Spec. Ser., 1923, No. 79.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### GENERAL MEETING OF FELLOWS.

AT a meeting of this Society held on Feb. 15th, Sir STCLAIR THOMSON, the President, occupying the chair, a discussion on

### FOCAL SEPSIS AS A FACTOR IN DISEASE

was opened by Prof. G. R. MURRAY (Manchester), who read the paper which appears in full in another column.

Mr. HERBERT TILLEY followed from the standpoint of the nose, throat, and ear. He said that sepsis in those regions had so many and far-reaching possibilities that it had been necessary for him to exclude its acute manifestations, as well as those resulting from direct spread of infection in the immediate neighbourhood of the primary focus. The path of organisms or their toxins to their destination might be either direct or indirect. Infective elements might be inhaled directly into the lower air passages and cause lesions in larynx, trachea, bronchi, lungs; or, when swallowed, might set up morbid conditions in the gastro intestinal tract. Indirectly, they might travel by the blood stream or lymphatics and produce disease in any distant organ. With regard to the faucial tonsils and the other constituents of Waldeyer's ring, he said he understood by a septic tonsil one which was subject to attacks of inflammation, associated with some enlargement of its corresponding cervical gland behind the angle of the jaw. The size of the tonsils was of little clinical significance unless, in children, there were symptoms of obstruction. Systemic symptoms were particularly liable to ensue from small, fibrous, septic, buried tonsils, which were frequently hidden behind purple-red faucial pillars. The mere presence of bacteria in crypts was no evidence of disease. Dr. G. B. Wood, of Philadelphia, pointed out the importance of realising the possibility of soluble toxins being absorbed from the tonsil directly into the blood stream. As an instance of mild toxæmia resulting from throat disease, he quoted the case of a lady who had occasional sore-throats and slight feverish attacks. She easily tired, and was not refreshed by extra sleep. She was anæmic, the tonsils were septic, and the jaw glands were enlarged and tender. The tonsils were enucleated, and she wrote later that she never knew what it was to feel really well until the tonsils had been removed. F. J. Poynton, studying rheumatic infection in childhood, analysed 1108 cases of primary attacks of acute rheumatism in children, and said that most of them developed along the lines of sore-throat, arthritis, and morbus cordis. Poynton considered the tonsils an important site of infection. Mr. Tilley recorded a case of chronic tachycardia in a boy from whom, after a week's rest in bed, the tonsils were removed; within ten days the pulse-rate became normal and had remained so three years. He knew many cases in which early types of arthritis, fibrositis, and myositis were cured by complete removal of septic tonsils. The influence of such infective foci in causing bronchial catarrh and bronchitis was most seen in children. In later years tonsillar disease seemed to cause anaphylaxis, as shown in vasomotor rhinitis, asthma, and urticaria. With regard to gastro-intestinal lesions, these, he thought, were more frequent following dental or nasal sinus sepsis than after tonsillar infection, owing to the larger quantities of pus swallowed from the former. The relatively smaller amount of material from the tonsil could possibly be dealt with by the gastric juice and healthy stomach. Subinfection of the kidney also occurred from nasal, faucial, and dental sepsis.

Mr. Tilley said his remarks applied equally to the accessory sinuses. The symptoms in young children were identical with those due to septic tonsils. When these sinuses were at fault the child had an obscure evening pyrexia, "growing pains," polyarthritis, bronchial and asthmatic symptoms; indeed, the clinical picture might mimic that of tuberculosis. S. T. Darling, of America, considered that lobar pneumonia was often a direct subinfection from accessory sinuses. And there was evidently a close association between bronchiectasis and brain abscess. Mr. Tilley had seen chronic myocardial lesions quickly relieved by treating the nasal sinuses. The nervous system was peculiarly liable to suffer from the effects of chronic toxæmia; especially were headache, migraine, and neuralgia likely to occur; also sciatica and peripheral neuritis; while retrobulbar neuritis in this connexion had already been discussed by the Society. In conclusion, he advocated the early removal of septic foci as the quickest means of cure, and asked that there should be a closer coöperation of all special workers in the domain of medicine. The aural aspect of the subject he dismissed by pointing out how frequently the general health was benefited by curing chronic suppurative otorrhœa.

Mr. F. W. **BRODERICK** (Bournemouth) dealt with the subject from the point of view of dental sepsis, pointing out the frequent association of arthritis, lessened sugar tolerance, and a depression of the autonomic nervous system. He said the presence of a granuloma at the root apex was a proof that Nature was setting up a good reaction in the body to the focal infection. A view now largely held was that dental conditions were an indication of a general systemic upset. The predisposing cause of caries was an alteration in the acid base equilibrium of the blood towards the acid side. Removal of septic teeth was often disappointing in results, and pyorrhœa seemed to be the result of an attempt to compensate alkalosis. He stressed the importance of the retention of some natural teeth by patients where this was possible, for adequate nourishment meant so much.

Dr. F. G. **THOMSON** (Bath) spoke of the influence of focal infection in the causation of arthritis. The term "rheumatoid arthritis" ought to be deleted from the nomenclature of the disease, "focal arthritis" being substituted. He insisted on the similarity of mechanism between ordinary arthritis and gonorrhœal arthritis. In 75 per cent. of the former gross infective conditions of teeth or tonsils could be demonstrated, and in many of the remainder there was an infection of the intestinal or the urinary tract. When one saw a case of multiple arthritis with a local infection, it was remarkable how the joint symptoms disappeared simply as a result of treating the focus. It was doubtful whether arthritis was due to the organisms themselves or even their toxins. As only a small proportion of cases having infection of teeth, tonsils, or urinary tract developed multiple arthritis, there must be some factor required for the latter to develop other than the sepsis, but whether this was associated with want of endocrine balance or other biochemical anomalies was matter for conjecture. But most cases of multiple arthritis showed an absence or great diminution of hydrochloric acid in the gastric juice, and this permitted secondary intestinal infection. With regard to the other group of chronic arthritis—namely, osteo-arthritis—here focal infection seemed to have no part; it was a degenerative condition associated with arterio-sclerosis and malnutrition of the joint, the determining factor being injury or strain.

Dr. F. C. **GRAVES** (Rubery Hill Asylum, Birmingham) dealt with the subject of sepsis as a factor in the causation of mental disorder. He had noted that in mental patients removal of purulent and septic foci was followed by greater stability in the circulatory and mental states. His contribution consisted of the exhibition of a series of lantern slides showing the actual dental and other foci, and the relation of the symptoms, with photographs of the patients before and after the treatment. Usually surgical removal of the focus was followed by an exacerbation reaction, this giving place later to definite improvement.

Mr. G. A. **PEAKE** also spoke from the dental standpoint, and referred to ocular complications of focal disease. He had seen especially good results from treatment of these foci in stomach disorders. He deprecated wholesale extraction of teeth on the slightest sign of dental trouble, especially as the patient was thereby deprived of a good means, by mastication, of keeping up the resistance of the body. At present, he considered the massacre of the teeth out-Heroded Herod.

Dr. E. **STOLKIND** agreed as to the close relation between dental defects and general disease, and said the too frequent advice of the doctor was to have all the teeth extracted. He quoted a number of his own cases to show that this advice was often founded on very slender causes. In a general way, he considered that the relationship between dental and general disease was much exaggerated, and that mere gingivitis, which would lend itself to special treatment, was made the excuse for rendering the patient edentulous. In cases in which the teeth were at fault and it was thought they should be removed, this should only be carried out after there had been a consultation between specialists.

Dr. P. **HAMILL** said there was a tendency, in all discussions of this nature, to concentrate too much on one particular region of the body. He thought cases could be divided into two main groups—those in which one was satisfied that focal infection was the cause of the patient's condition; and, secondly, those in which there was what might be regarded as a flank attack, which had the effect of diminishing the general health of the patient, and so allowing some unimportant condition of which he was the subject to become unduly prominent. In cardiovascular disorders he thought it would be agreed that infected tonsils were a very important factor; they at least were answerable for a continuance of the trouble. He instanced the delicate type of boy with a somewhat dilated heart, who showed a liability to faint, and had a raised pulse-rate and small rises of temperature. Yet his circulatory system was sound, as on most days he was able to join in school games. Frequently in such boys one could find a septic focus, removal of which mostly produced a dramatic effect. One case of grave myocardial disorder with auricular fibrillation which he quoted was proved later to have cholecystitis; after gall-stones had been removed his other symptoms became fewer and fewer, and he was being cured rapidly. A case of paroxysmal tachycardia he found to be associated with septic and defective crowns and bridges. He also spoke of the association of tonsillar disease with appendicitis, also of the latter with pus in the antra. He fully agreed with those who condemned the wholesale extraction of teeth; he regarded this measure as a mutilation; each separate tooth should be tried and weighed in the balance before being sacrificed. Many had seen infective processes exacerbating cases of exophthalmic goitre. And was it not possible that a long-continued sepsis exhausted the sympathetic thyroid side of one's economy? His own impression tended to that belief. In one of the cases of which a photograph was shown by Dr. Graves, the thyroid enlargement did diminish after the focal sepsis had been cleared away. It was common knowledge that an infective process embarrassed the carbohydrate metabolism and diminished the resistance of the patient.

The PRESIDENT said that as most medical men had now been coverted to a belief in the importance of focal sepsis, he would confine his brief reference to exhibiting four temperature charts of cases. The first was that of a case of pan-sinusitis. This gentleman was seized with an acute cold in the head and was in bed three weeks. There was suppuration in all his sinuses. The antrum was washed out, and a streptococcal infection was found there. The pain was so intense that his relatives thought he had meningitis. He got well of the sinusitis. Another was the chart of a hospital nurse who had an acute left-sided multisinusitis, and from her a pure culture of the influenza bacillus was obtained. She had only medicinal treatment, rest, and warmth, and made a complete recovery Another chart was that of another nurse, and her trouble also followed influenza, and the organism found in her sinus was the pneumococcus in pure culture. She also got well. The third was that of a girl of 17, who developed acute double sphenoidal sinusitis. She developed secondary abscesses in the neck. The sinuses were opened and drained and they each yielded streptococci. She had also thrombosis of the cavernous sinus, and death took place from meningitis. At the post-mortem examination, pus was found in the anterior fossa and in the orbit.

## SECTION OF NEUROLOGY

AT a *meeting of this Section, held on Feb. 11th,* the chair being occupied by Dr. H. CAMPBELL THOMSON, the President, a discussion on the

### *Sympathetic Innervation of Striated Muscle*

and its bearing on the treatment of spastic paralysis was opened by Dr. F. A. ADRIAN, who expressed the regret of neurologists that Dr. Hunter, of Sydney, was cut off in the midst of his valuable researches Though Hunter and Royle were not present to support their contentions, these latter must be subjected to the unsentimental scrutiny and criticism demanded by science. Hunter's theory seemed never to have crystallised completely, and the speaker felt that that worker *would himself have modified it if he had lived.* The main attention must be given not to theory but to matters of fact—i.e., the issues of experiments done Hunter and Royle put new life into the theory of the sympathetic *control of tonic contraction; they also* described an operation based on that theory for which they claimed benefit in spastic conditions and certain forms of paralysis The speaker said he did not think it could be held that the theory and the results of that operation necessarily stood or fell together.

Dr. Adrian proceeded to pass in review the physiological work which had been published on the sympathetic system and tonic contraction. Tone was a very difficult subject to investigate. It was now generally believed *that* accessory non medullated fibres existed in striped muscle, and that these supplied muscle fibres which were also innervated by medullated nerve fibres, and that they did not degenerate when the anterior roots were cut. These accessory fibres were innervated from the sympathetic ganglia. Several points were still doubtful; *for instance,* whether these fibres existed in every muscle or only in some; also whether they supplied a special part of the muscle-fibre which was not innervated by the medullated nerves. He entered into the pros and cons of these doubts Hunter and Royle believed that sympathetic fibres innervated separate muscle-fibres—namely, those of the red variety which contained sarcoplasm, and that those fibres were *not supplied* by the cerebro spinal system But all the evidence at present seemed to be against that view. Garvin had carefully investigated the *muscles* of the hedgehog—a peculiarly suitable animal—and had found no clear separation into two distinct kinds of fibre. What he found was a kind of infinite gradation from muscle-fibre rich in sarcoplasm to fibre which was poor in that substance. Still, it was possible that some fibre *might react* separately to two sets of nerves, one set might contract in one way, another set might contract in another.

*As soon as the existence of these accessory non-*medullated nerve-fibres had been demonstrated, attempts were made to discover their function. It seemed most likely that they were associated with the tonic form of contraction There were two distinct ways in which a muscle might behave; it might perform a series of rapid phasic movements, or it might hold a limb in a definite posture by maintaining a steady contraction. In the first of these forms a good deal of energy was used and the gaseous exchange was considerable, while fatigue occurred rapidly. There was also a fairly large electrical response. In the tonic contraction there seemed to be very little fatigue, there was a small energy exchange and a low *metabolism, and a small electrical* response. *In some* bivalves the distinction between these two kinds was very real and marked, and the two different kinds of contraction were carried out by separate muscle-fibres. In some animals destruction of the sympathetic on one side produced a decreased tone on that side, but in some cases it was impossible to know which side had been operated upon; tonic contraction seemed to go on in spite of the complete absence *of impulses coming down from* the sympathetic. Langeland considered that increase in spasticity did not mean the same thing as increase in tone as ordinarily understood. It did not mean that muscle developed a greater resistance to change in its length, but that it was pulled out more rapidly by a given weight. This was a very different conception from that afterwards introduced by Hunter and Royle. The classical experiment to demonstrate decerebrate rigidity had failed; it failed to *show a sympathetic* influence on tonic contraction. It seemed that the loss of the sympathetic did not produce that loss of nervous *impulse which was the immediate* cause of the change in length of the muscle, but it produced some trophic *factor without which* the muscle could not carry out tonic reactions so easily. It was not likely to be a direct effect on the muscle-fibre, comparable to the effect of the medullated nerves in causing *contraction.*

But it was chiefly the *facts* which were *in dispute;* there was considerable doubt even about the delayed sympathetic effect. Meek and Crawford, in America, carried out the operation of destruction of the sympathetic in dogs, and decerebrated them from 83 to 77 *days after the operation;* and they found no significant difference of any kind on the two sides, though they used very careful methods of investigation. Hunter's experiments on birds were more difficult to evaluate. The speaker said that on the experimental side *the balance* of evidence seemed to be against the view that the sympathetic sent out nervous impulses which had a direct controlling effect on the posture, length, or plastic tone of the limb muscles —i.e., an effect comparable to that *of the* cerebro-spinal impulses. But Hunter and *Royle* deserved the highest praise for having devised the operation of sympathetic ramisectomy for cases of spastic paralysis with excessive plastic tone. Some found this operation to be of great value, *others* failed with it. It was, however, only claimed to benefit those cases in which an increased plastic tone was the dominant feature. If the operation was successful it would not imply that the sympathetic exercised a direct control over the changes in the length of the muscle.

### *The Investigators' Work Reviewed.*

Dr. J. BEATTIE read the communication which was contributed for the meeting by Prof. G. ELLIOT SMITH. It consisted of a general review of the work of Hunter and Royle and other investigators on this subject, and was illustrated by a number of slides, some of them from the cinematograph film in the possession of Prof. Smith. *Hunter had found that* in goats there were two mechanisms in the hind brain controlling tone in the limbs, and that both these centres had to be cut off from their spinal cord connexions before complete relaxation of the limbs could be secured. Hunter also showed that the maintenance of tone in the limbs was not entirely dependent on Deiter's nucleus; that it resided in two centres, and only disappeared when both had been cut off from the spinal cord. He reminded the meeting of two important declarations of Sherrington—that the tone of skeletal muscle was a postural proprioceptive reflex, and secondly, that section of the sympathetic nerves did not render a group of muscles much more liable to fatigue than normal muscle. Muscle which was fatigued as a result of denervation became definitely toneless.

Prof. EDWIN BRAMWELL (Edinburgh) said the meeting had discussed the effect of division of nerves in animals on spastic conditions, but was it not possible to regard the matter from another standpoint? Were there any conditions affecting muscle in which phenomena were present which could not be accounted for by disease of the muscle itself? In this connexion he referred to the muscular dystrophies. It had been suggested that these probably had a neuropathic basis; but how were they to be explained? Was it possible they might be due to disease affecting the sympathetic? Histology only could supply the proof. Still, there were some facts of interest, notably the histological appearance of muscle in muscular dystrophies and the vasomotor changes met with in some of these cases, as evidenced by marbling of the skin, which could not be explained by a pure muscle condition. Could not the sympathetic be responsible?

Mr. A. S. BLUNDELL BANKART said his operative experiments in this relation had yielded chiefly negative results. He felt grateful to Hunter and Royle for having demonstrated the feasibility of cutting off the sympathetic supply to a limb by excising the sympathetic, and he had done that ten times in seven patients. The first case in which he attempted it—a very old-standing spastic paraplegia—was a technical failure, though the patient was eventually none the worse. The operations in the other cases were demonstration operations; he was sure the correct rami communicantes were destroyed. The only cervical operation he did was on a woman aged 34, who had, as a sequel of encephalitis lethargica, generalised rigidity, with great increase of muscular tone in all the limbs, though chiefly in the upper ones, and on the right side more than on the left. Following the operation there was a transient diminution of the spasm and some swelling of the limbs due to increased vascularity. But this passed off and a week or two after the operation the woman was no better. An illustrative example of the lumbar cases was that of a girl aged 13, a typical cerebral diplegia, with marked spasticity and contracture of all the limbs. He operated first on one side then on the other, and there was a dilatation of the whole limb after the operation. Also, it was agreed that there was a diminution of muscular tone, and the limbs were moved somewhat more freely. The speaker, however, could not persuade himself that the operation had been of any definite benefit to her. None of the results in the other cases could be regarded as hopeful, therefore he did not propose to do the operation any more until he saw some strong additional reason.

Dr. F. M. R. WALSHE made a few remarks in justification of the position he had taken up on this subject, and which had been commented on in one of the contributions. He said that in Hunter's experiments on sea-gulls, in which he produced an effect on the wing by cutting the posterior roots, he must have cut, in order to get that result, something else besides the posterior roots; the anterior roots must have been damaged too. He contended that there was no evidence that muscle tone could be divided into component parts, and if he was right in that contention, the theoretical aspect fell to the ground.

Mr. G. JEFFERSON (Manchester) said that his trial of the operation suggested by Hunter and Royle had been confined to the human subject. He observed the wave of ramisectomy spreading to this country when he was in the United States in 1924, and an Australian arrived at Cushing's clinic in the States when the speaker was there with much enthusiasm for the operation and statements of great benefit having accrued in the matter of loosening of limbs. He himself saw a surgeon operate on an arm, removing part of the cervical sympathetic, but with very slight immediate result, to everyone's disappointment. It had been said by some that technique or judgment had been at fault. Therefore the speaker, on reaching this country, sought opportunities of sympathectomising patients, and he had done it on six—five on the upper limb, one on the lumbar sympathetic. From the therapeutic standpoint of view his results coincided with Mr. Bankart's. All were hemiplegias, and all except one of the patients were under 20 years of age. Not one of those patients had received any benefit whatever from the operation. Some admitted that for a time the limb felt warmer, but one could not detect any difference in any respect. His conclusion was that the operation on the human being was not worth while.

Dr. ADRIAN and Dr. BEATTIE briefly replied.

## SECTION OF PSYCHIATRY.

### *Exhibition of Specimens and Laboratory Methods.*

A MEETING of this Section was held at the Maudsley Hospital, Denmark Hill, on Feb. 10th, Dr. R. H. COLE, the President, being in the chair, when various exhibits of pathological specimens were demonstrated and also laboratory methods used in the investigation of mental disease. Discussions took place upon the material shown.

Dr. C. LOVELL showed a series of brains from cases of anxiety psychosis and encephalitis, also slides and microphotographs of the brain and pancreas; in each of these cases the pancreas had been found to show inflammatory changes. His work on surface tension of the blood in such cases and the pathological findings had led him to think it probable that disordered pancreatic function was the underlying and predisposing cause rendering the organism susceptible to cerebral vascular disease or infection, just as diabetes mellitus predisposes the organism to staphylococcal infection. Treatment by a low carbohydrate diet and secretogen had proved of benefit in some cases, and had altered the abnormal surface tension.—In the course of the discussion, in which Colonel G. LORD, Dr. GRAHAM FORBES, Dr. A. PETRIE, and the PRESIDENT also took part, Dr. P. CLOAKE suggested that the pancreatic and other endocrine changes might be the result of disease of the sympathetic centres in the grey matter of the third ventricle.

Dr. F. GOLLA, with the collaboration of various workers, showed specimens of cerebral tumours in cases where there had been no signs of organic disease until shortly before death, and the PRESIDENT quoted a similar case recently seen at St. Mary's Hospital.—Colonel LORD and Dr. NICHOLLS showed a case of porencephaly which had apparently resulted from some disease at the age of 2 years, and Dr. CLOAKE commented on the cases as supporting the view that this condition is acquired and not a failure of development.—Slides from a case of the Lorain type of infantilism were shown by Dr. EFFIE BRANDER, in which the anterior lobe of the pituitary alone was affected, while other endocrine glands showed marked changes.

Captain MANN and Dr. ROBERTSON gave a demonstration of the use of various methods for determining basal metabolism, including those of Krogh and Haldane, and a modification of Benedict's apparatus giving graphic readings. The van Slyke microapparatus for estimating the basal alkalinity of the blood, and a new model for analysis of alveolar air were also shown. Colorimetric methods for the estimation of hydrogen-ion concentration of blood and urine were explained, and their use in demonstrating the normal alkaline tide after meals and its absence in certain psychotic patients.—Dr. SHEPHERD showed the Pachon recording apparatus designed for estimating the blood flow in the hand and its variations under emotion and the administration of drugs.—Dr. GOLLA showed an apparatus for accurate recording of the knee-jerk and the state of muscle tone.—Dr. LANDIS showed the electrocardiograph, and tracings taken from normal and psychotic patients before and after such stimuli as a sudden noise. He also demonstrated the use of an apparatus for the exact continuous recording of blood pressure and its variations under stimuli of different kinds.

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## EDINBURGH OBSTETRICAL SOCIETY.

AT a meeting of this Society held on Jan. 13th Dr. R. W. JOHNSTONE, the President, took the chair, and Prof. J. A. KYNOCH (Dundee) read a paper on

### *Three Cases of Cæsarean Section,*

in which the operation had been required on account of some unusual occurrence.

The first was a 8-para, suffering from severe internal accidental hæmorrhage, who was in a collapsed condition before operation was performed. Cæsarean section was done as quickly as possible, and on opening the abdomen the uterus was found to be congested and hæmorrhagic, with here and there purple mottled patches. There was concealed hæmorrhage in the left broad ligament, and the left Fallopian tube presented the same hæmorrhagic appearance. The child was delivered and the uterus was stimulated to contract by means of pituitrin and by hot towels. This was carried out for at least 10 minutes before the contractions became satisfactory, after which the uterus and abdomen were closed. Although in a very weak state after the operation the patient made an uninterrupted recovery and left the hospital in three weeks.

The second case was one of prolapse of the cord in a 2-para whose first confinement had been difficult on account of a slightly contracted pelvis and had resulted in the birth of a child which did not survive. On her admission for the second confinement the cervix was slightly dilated and the cord was found to be prolapsed, but there was still pulsation and the fœtal heart sounds were satisfactory. On account of the contraction of the pelvis Cæsarean section was decided upon and a living child was delivered.

The third case was one of funnel-shaped pelvis, which Prof. Kynoch deemed to be more common even in this country than was generally supposed. The head had remained on the pelvic floor and had been making no progress for four hours; on examination the subpubic angle was found to be so acute that barely two fingers could be admitted. The diameters of the outlet were: inter-tuber-ischial, 3¾ in., posterior sagittal, 3 in. On account of these measurements and the acuteness of the subpubic angle, spontaneous or instrumental delivery was impossible, and it was therefore a question whether pubiotomy or Cæsarean section should be the treatment. As the patient was a primipara, Cæsarean section was decided upon, and a 7 lb. child was delivered. Both mother and child made a satisfactory recovery

Prof. Kynoch pointed out that the first of the three cases made it clear that, sometimes at any rate, a uterus with severe internal accidental hæmorrhage could be stimulated to contraction by the use of hot towels and pituitrin, and hysterectomy could be avoided.

### *Operation for Rectocele.*

Prof. B P. WATSON read a preliminary communication on his technique for the cure of rectocele. The essential feature in his operation, he said, was the isolation of the special fascio muscular sheet which supports the rectum and which is deficient in all cases of rectocele. The condition does not occur, even when the levatores ani muscles and their fascia are badly damaged, as long as this rectal fascia remains intact. The fascia lies deep to the levator ani muscle in close relation to, and supporting, the anterior rectal wall. It is in intimate relation with the posterior vaginal wall in its middle third, and becomes continuous at the sides of the cervix with the pubo-cervical layer of fascia—the essential support of the bladder. The operative treatment recommended for rectocele consists in defining and freeing this fascia and then repairing it after replacing the herniated rectum. Prof. Watson described the operation in detail. The essential points were as follows. A flap of the posterior vaginal wall is raised by inserting closed scissors midway between the middle line and the limit of the muco-cutaneous perineal incision on either side. The scissors are passed beneath the postero-lateral vaginal wall, well to the side of the rectum, and are opened out. In this way the natural line of cleavage is easily found. Dissection is then carried out towards the middle line where scar tissue obliterates any definite layers. This scar tissue is easily dissected off the rectum from the sides and the dissection is carried to the upper limit of the rectocele. As this is done two bands of tissue appear, which are firmly attached to the under surface of the vaginal flap. Between them, in the middle line, there bulges the rectal wall. These bands are the edges of the torn rectal fascia and when the dissection is carried out to the upper limit of the rectocele they are found to unite in the middle line. This fascia is freed and then united over the rectum by continuous suture. By this means the rectocele is cured. The perineum is built up in the usual way. The chief point in the operation, said Prof. Watson, was the separation of this rectal fascia from the under surface of the levatores ani. This was done by blunt scissor dissection, and thus the fascia could be sutured separately and not along with the muscle as was usually done. By this means there was no tension and better healing and more accurate apposition was ensured. The operation was more correct anatomically than the usual procedures in cases of rectocele and had given excellent results, no recurrences of a rectocele having ever been reported after its performance.

### *Post-partum Convulsions.*

Dr. E CHALMERS FAHMY described a case of post-partum convulsions which had presented difficulty in diagnosis.

The case was one of a 1-para, who was admitted in labour to the Royal Maternity Hospital, Edinburgh. The first labour had been uneventful, and throughout the second pregnancy she had been well except for slight œdema of the feet and legs. On admission the blood pressure was normal and there was only a slight trace of albumin in the urine. She was delivered spontaneously, and the placenta and membranes came away complete. Twelve hours after delivery she complained of headache and difficulty of vision. Morphia was given at once, but a fit developed. The usual treatment for eclampsia was then administered, but a second fit occurred one and a half hours later There was albumin (1·4 per cent.) in the urine, but the blood pressure was only 140/98 mm. Hg. The patient became drowsy on recovering from the fits, and this drowsy condition lasted for seven days. The blood pressure for these days was never above 130 mm., and the albumin decreased by degrees. On the seventh day after delivery fits recurred, and within 12 hours she had 11 fits. Lumbar puncture was done, and some clear fluid under increased tension was withdrawn. No micro-organisms were found in the fluid There was now only a slight trace of albumin in the urine. The patient again became drowsy, but consciousness returned in a few days and she became perfectly well, being discharged from hospital after a further three weeks. At a subsequent pregnancy a healthy child was delivered without any signs or symptoms of toxæmia, and during this pregnancy there was no albumin in the urine.

Diagnosis, said Dr. Fahmy, was very difficult. In his opinion the fits were due in the first place to eclampsia; this was followed by drowsiness, culminating in fresh convulsions due probably to the brain being affected by the toxæmia. Possible diagnoses of hysteria, epilepsy, and a lesion of the brain were ruled out, but it was difficult to exclude nephritic toxæmia definitely. The patient's subsequent pregnancy, in which there was no albuminuria, made the diagnosis of nephritis unlikely.

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*Corrigendum.*—Mr E. B. Fuller, who took part in the discussion on pyelography at the Section of Urology of the Royal Society of Medicine on Jan. 28th (THE LANCET, Feb. 6th, p 289), is lecturer in clinical surgery at the University of Cape Town.

## NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Jan. 21st, when Mr. H. BELL TAWSE, the President, took the chair, and Sir WILLIAM MILLIGAN (Manchester) delivered an address on

### *Radiodiathermy for Inoperable Malignant Disease of the Upper Air and Food Passages.*

After demonstrating the action of diathermy by lantern slides showing the effect on a piece of pork of the various discs and buttons used in practice, he enunciated the following principles of treatment: (1) The indifferent electrode must be wrapped in numerous folds of lint soaked in salt solution. (2) The diathermy point—the active electrode—must be in contact with the tissues before the current is turned on. (3) The current must be very slowly increased. (4) When "sparking" occurs, the current must be switched off. (5) The button should not be removed till the current ceases. (6) No single sitting should exceed 20 minutes, as up to this limit there is practically no shock.

The most favourable cases for diathermy, he said, were those in which malignant disease affected the nasopharynx, palate, tonsil, and oropharynx. Where there was secondary involvement of glands block dissection should precede diathermy and the lymphatic area should be irradiated with radon needles or applicators, or both. There were cases in which the growth disappeared and the patient remained free from recurrence for periods varying from one to seven years. When it was found that glands were inoperable, the destruction of foul, painful ulcers gave immense relief to the patient. In all cases preliminary ligature of the main blood-vessel to the area was desirable so as to lessen the risk of secondary hæmorrhage, which was liable to occur about ten days after operation, when sloughs were separating. For removal of the tongue the diathermy knife was superior to the scalpel. The results of treating inoperable growths in the hypopharynx and larynx had proved rather disappointing, whether diathermy was preceded by or followed by radium, and amongst possible complications were œdema of the glottis, inability to swallow, necrosis of cartilage, and stricture. Preliminary tracheotomy became essential and preliminary gastrostomy might become so. The Brussels school employed diathermy in operable intrinsic cancer of the larynx through a window in the thyroid cartilage. In closing his address Sir William Milligan expressed the hope that general surgeons would more often prefer the diathermy knife to the scalpel in both operable and inoperable malignant disease.

The PRESIDENT said that operation frequently revealed extensions which placed the cases in the inoperable category. Although both radium and diathermy seemed in rare cases to stimulate the growth of malignant disease, the excellent results were sufficiently numerous to overshadow them.

A number of members took part in the discussion.

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A CONFERENCE ON MILK.—The "Grade A (Tuberculin Tested)" Milk Producers' Association is arranging a conference at University College, Reading, on March 23rd and 24th. A similar conference was successfully held by the Association in 1924. Subjects to be discussed will be the present position of Certified and Grade A (Tuberculin Tested) Milk in Scotland; the steps taken by the Ministry of Agriculture to promote the production of graded milks; the cost of producing Grade A (Tuberculin Tested) Milk; the value of the tuberculin test to the dairy farmer; the growth of grade milk production; and the control of tuberculin tested milk from its source to the consumer. Visits will be paid to graded milk producers' farms, to distributors in the district, to the College Farm and the National Institute for Research in Dairying. Hostel accommodation at moderate rates will be provided at St. Patrick's Hall, University College. Information may be had from Lieut.-Colonel C. Maddock, C.I.E., M.D., Foxglade House, Shinfield, Reading.

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# Reviews and Notices of Books.

### EDUCATIONAL PSYCHOLOGY: ITS PROBLEMS AND METHODS.

By CHARLES FOX, M.A., Christ's College, Cambridge, Director of the Training of Teachers and Lecturer in Educational Psychology in the University of Cambridge. London: Kegan Paul, Trench, Trübner and Co., Ltd. International Library of Psychology. 1925. Pp. 380. 10*s.* 6*d.*

THIS book is a worthy addition to a series of outstanding merit. Ostensibly it deals with the contributions made by experimental psychology during the last quarter century to educational problems, but the volume surveys a wider field and embodies a definite point of view. The author's attitude to one school of psychologists is epigrammatically summarised in his description of a well-known psychological text-book by a Behaviourist as an "excellent book on physiology." And he is a vigorous opponent of the idea that by analysing mental life into its elements we shall have explained it, being an adherent of the "Gestalt" school of psychology, which holds that "there is no such thing as a mental factor isolated from others, but all mental life has a structure, a pattern *ab initio.*" Mental phenomena do not explain mental life any more than the notes explain a melody. Association will not account for the reduction to order of the chaos of disconnected movements, sensations, and ideas usually supposed to be the units of mental life.

With regard to mental images, he contests the widely held view that they only differ from sensations in respect of quantity and contends that there is a real difference in quality. He finds confirmation of this in Galton's account of the responses to his questionnaire on mental imagery; Galton was surprised that scientific and other thinkers had so feeble powers of visual representation, but the author interprets this as meaning that their introspections were more accurate than those of the less trained observers. Imagery plays but a small part in thinking; there is only a low correlation between vivid imagery and intelligence. Educationists will be interested in the author's conclusion that the particular type of imagery used in presenting a subject to the pupils makes little difference to the result, the learning process being much more dependent upon the mental make-up of the learner. Throughout the book he insists upon this personal element. Habit, for example, never results from mechanical repetition; there must be consciously directed effort on the part of the individual. With regard to memory, too, he insists that experimental evidence which fails to allow for the personal factor—the desire or will to remember—is valueless, and he produces strong evidence for his view. Similar fallacies attach to investigations on fatigue when psychological factors—the desire to do well or secure a reward, interest in the work, suggestion—are neglected. It is not so easy to accept his contention that a formed habit constitutes an impulse to action, an acquired impulse in contrast to the innate impulses which McDougall regards as the sole motives of action. His examples are not particularly happy. The effect of religion in moulding human nature is an instance of the action of a "sentiment" (in McDougall's sense) regulating inborn instincts rather than that of a habit. Religion can scarcely be called a habit, though it may produce habits.

There are interesting sections on heredity, showing a strong leaning towards the acceptance of the inheritance of acquired characters, and on mental tests. The chapter on fatigue is excellent; the essential point in the author's opinion is the diminution in the power of steady attention, the variability both in quantity and quality of the work done. The bibliography of literature on the subject is made more valuable by the author's notes, brief but pointed.

### EARLY TUBERCULOSIS IN THE ADULT.

*Die Klinik der beginnenden Tuberkulose Erwachsener.* Vol. III. By Dr. WILHELM NEUMANN, Professor in the University of Vienna. Vienna: Julius Springer. 1925. With 72 illustrations. Pp. 176. 14*s.* 3*d.*

THIS volume is divided into two parts. The first deals with changes in the lungs of non-tuberculous origin, the symptoms of which may simulate early tuberculosis. A careful description of changes caused by tumours, primary and secondary, of the bronchi, lungs, pleura and mediastinum, and by syphilis is given from the clinical and radiographic points of view, fortified, in some cases, by post-mortem records. It may be questioned if much advantage is to be gained from the clinical charts, which are freely reproduced, since the signs employed are not always easy to understand when no key to their significance is provided. Dr. Neumann emphasises the importance of careful search for the tubercle bacillus, and adopts Lawrason Brown's dictum that if bacilli are not found after repeated examination, bronchiectasis, syphilis, influenza, tumour, and Hodgkin's disease should all be considered and excluded. The second part of the volume deals with certain symptoms similar to those caused by tuberculosis, but due to other diseases. The most valuable section is that dealing with hæmoptysis and its association with tumours, cardiac and hæmophilic conditions, and hæmosialemesis, the expectoration of blood-stained morning fluid. Admirable, too, are the sections devoted to febrile and subfebrile conditions, to the influence of scoliosis in the production of atelectasis and deformities which give rise to changes in the percussion note, persistent crepitations and apparent wasting, and thus lead to wrong diagnoses. Although the lateral extension of Krönig's percussion area on the side of the scoliotic convexity is touched upon, nothing is said of the "compensatory" effect of greater fullness on the side of the convexity behind, flattening of the corresponding apex in front, and the reverse changes on the side of the concavity. Clinical records from the author's own experience are freely supplemented by the records of others. The care taken to enumerate and illustrate so many different conditions makes the book rather difficult to read, but it is likely to be valued by those whose daily work brings them into close association with the difficulties described. At the end of the book is given a subject and reference index to the three volumes of the series which have appeared.

If subsequent volumes reach the same standard this work should be a valuable addition to the literature of tuberculosis.

### REMEDIES AGAINST THE PLAGUE.

The Earliest French Tracts Printed in the Fifteenth Century, Facsimiles, Notes, and List of all the Incunabula on Plague. Paris: A. C. Klebs and E. Droz. 1925. French edition, Fr.80; English edition, Fr.100.

THE literature of plague is enormous. The very titles of the works written about it fill more than 50 pages in the Index Catalogue. For hundreds of years the dread of it brooded over Europe, and the petition "from plague, pestilence, and famine, Good Lord deliver us" was put up daily in England as no empty form of words. This volume, the first of a series of scientific documents of the fifteenth century, is a dainty portfolio of pott quarto size, and contains in facsimile a Régime in French verse and two prose pamphlets on Remedies against the Plague. Mademoiselle E. Droz has herself edited the volume and acknowledges the help given by Dr. A. C. Klebs. She has performed the task with great judgment; she has not allowed herself to be beguiled into side issues, but has followed the straight path dealing solely with the tracts under her consideration. By this means she has recalled to memory Johannes Jacobi, of whom very little is known except that he was a physician at Montpellier, was appointed Chancellor of the University in 1364, treated the popes, and was left legacies by the Duke of Anjou and King Charles the Fifth. At the end of the facsimiles is a useful and seemingly complete bibliography of plague incunabula, the appearance of which would have rejoiced the heart of Sir William Osler. This work and that of Mrs. D. W. Singer on Plague Tractates, to which attention is drawn, are creditable attempts to introduce some kind of order into what has hitherto been chaos.

### GYNECOLOGIC UROLOGY.

By LYNN LYLE FULKERSON, A.B., M.D., F.A.C.S., Assistant Professor of Gynecology, New York Post-Graduate Medical School; Surgeon, Cornell University Medical School Clinic. London: William Heinemann, 1925. Pp. 247. 27*s.* 6*d.*

IN this book, which is devoted to the diagnosis and treatment of urological diseases in women, the first chapter gives a useful little chart for the taking of histories, and the two succeeding ones deal with abnormalities of the urine and the anatomy of the female urinary tract. A section on instruments is full and well illustrated. In the series of chapters on diseases, while the usual scheme of classification is adhered to, the author emphasises throughout the clinical standpoint, giving very little pathology. This part of the book is uneven; there is a good account of ureteral stricture with references to Hunner's work, but the treatment of incontinence and enuresis is passed over too lightly, and the description of the technique of diathermy is too brief. For the chapter on pyelography a most excellent series of radiograms has been collected, some showing distortion of the renal pelvis due to malignant growths. The writer expresses his preference for 12 per cent. sodium iodide as a medium. The book concludes with a section on operative surgery, of which, perhaps, the most interesting part is the treatment of various forms of fistulæ and of relaxed vesical sphincter. The omission of any description of litholapaxy is curious. It is apparent that Kelly's endoscopes are more used in America than in this country, and a modification of this instrument, which can be used with either air or water distension, has been invented by the author.

On the whole this little volume will prove useful to those who have felt the want of a work devoted entirely to female urology. The diagrams, both plain and coloured, are excellent throughout, and a full bibliography is included.

### MANUAL OF EMERGENCIES.

Medical, Surgical, and Obstetrical. Second edition. By J. SNOWMAN, M.D., M.R.C.P. London: John Bale, Sons and Danielsson, Ltd. 1926. Pp. 301. 10*s.*

THERE are not many good English text-books which deal solely with the common emergencies which threaten life, and Dr. Snowman's manual in its second edition is therefore welcome. First published in 1919, it was based largely upon the English edition of Lenxmann's "Emergencies in Medical Practice," and it has now been effectively revised. The additions include descriptions of the surgical treatment of angina pectoris, the insulin treatment of diabetes, botulism and its treatment by serum, and the treatment of auricular fibrillation by quinidine sulphate. The last-named section is, perhaps, too simplified; the dosage of quinidine is rather a complicated subject and cannot be safely dismissed with advice to give 3 gr. doses. Prof. Stroganoff's treatment for eclampsia is also included. With regard to one important subject—viz., that of cerebral hæmorrhage and thrombosis—the treatment described is not that of the most modern teaching. Purging and venesection for cases of cerebral hæmorrhage are now considered incorrect by some authorities on the grounds that cerebral hæmorrhage nearly always causes a fatal termination and such treatment is the worst possible for cerebral thrombosis which may be present despite high blood pressure and in which the prognosis is much better if correctly treated. In describing the treatment of infantile diarrhœa no mention is made of the very valuable method of giving saline by the intra-peritoneal route. Apart from these points this new edition seems to be quite sound. The publishers announce that the size and bulk of the book have been reduced so as to enable it to be carried in the pocket. This seems a doubtful policy. It is unlikely that anyone will want to carry the book about always, and if it has to be looked for hurriedly on a bookshelf a larger size is at least no disadvantage.

## The Birmingham School of Medicine.

*William Sands Cox and the Birmingham Medical School.* By J. T. J. Morrison. 1926. Pp. 240. 5*s.* *History of the Birmingham School of Medicine, 1825–1925.* Being a special number of the *Birmingham Medical Review*, December, 1925. Edited by K. D. Wilkinson, M.D. Birmingham: Cornish Brothers, Ltd. Pp. 96. 2*s.* 6*d.*

These two volumes are complementary. That for which Dr. Wilkinson is responsible is a general history of the Birmingham School, of its birth and begetting, its somewhat stormy infancy and adolescence, and finally of its growth to a vigorous manhood. Prof. Morrison's book deals with the life and work of the man, if any one man can be said to be the founder of the school, by whose energy and foresight the Birmingham Medical School came into existence. He deserves praise for having produced so full and readable an account in the short space of some five months, for it was only at the end of June, 1925, that he was commissioned by the Medical Committee of Queen's Hospital to undertake the task, and the book appeared in print by Dec. 1st.

The beginning of medical teaching in Birmingham was due to one Mr. John Tomlinson, surgeon to the town infirmary, who in the winter of 1767–1768 began a course of lectures in anatomy for the benefit of "the young gentlemen of the Faculty"—i.e., the apprentices of the medical men in the town. A few years previously the foundation of a General Hospital had been suggested and a committee of medical men and others was appointed to further the scheme. One of the rules proposed that each surgeon be allowed three pupils to attend the hospital for instruction. The hospital was intended to cost £3000 and to have something over 100 beds. Many difficulties were encountered; not until 14 years after the opening meeting of the committee was the hospital formally opened, and then only with 40 beds. The number of pupils admitted had been increased, for each physician and surgeon was allowed to have twelve pupils for instruction. For many years nothing further was done, until a young medical man, by name William Sands Cox, in partnership with his father, Edward Townsend Cox, conceived the idea of having a regular medical school in Birmingham, and commenced a course of "Anatomical Lectures with Physiological and Surgical Observations" at his house in Temple-row on Dec. 1st, 1825. The plan had the approbation of the leading medical men of the town, but still difficulties arose, and Cox was not a man who possessed the saving grace of suffering fools gladly. However, eventually he triumphed, and by 1843 the school received a charter from Queen Victoria, being named the Queen's College. Three years previously the foundation-stone of Queen's Hospital had been laid, this building being intended to serve as a clinical hospital for the school. Cox's chief ally, without whose generous cooperation the scheme might never have matured, was the Rev. Dr. Warneford, Rector of Bourton-on-the-Water, a man of great wealth, which he employed in many philanthropic works. His name is kept green by the Warneford Asylum near Oxford, though his benefactions to Birmingham are nowadays less well known. In 14 years he contributed no less than £27,000 to Cox's various schemes, though his strict theological views were the source of some inconvenience. He was anxious that the college should be conducted upon Church of England principles, and although he had confidence in the original staff, yet he feared that after their death "future Satanic subtlety" might have to be met, and that "to guard against the subtle designs of the Jesuits and the insidious intrusion of malignant dissenters, imperatively requires much deliberation." The further progress of the school until the blossoming into being of the University of Birmingham, and the details of the generosity of Sir Josiah Mason, must be sought for in the volumes before us.

There is one statement in both books which requires modification in our opinion. Dr. Wilkinson (p. 34) and Prof. Morrison (p. 71), in speaking of the perfectly just claim of Queen's Hospital to be the first provincial hospital established for the provision of clinical instruction, go on to point out that even in London the only two hospitals which had this "educational character impressed as the prime reason for their existence" (Morrison) were University College and King's College. This statement is historically incorrect. University College was founded in 1834, King's College in 1839, and Queen's Hospital, Birmingham, in 1840. But the right to be called the premier hospital in London definitely founded for educational purposes belongs to Charing Cross. In 1818–1820 provision was made by its founder, Dr. Benjamin Golding, for the education of a certain number of free pupils belonging to "respectable but unfortunate families," and in Dr. Golding's own words, "the want of a university as far as medical education is concerned will be fully supplied." Birmingham may well be proud of her University and of the small beginnings from which it grew.

## Middlesex Hospital Papers.

*Published Papers by Members of the Staff of the Middlesex Hospital Medical School, 1924–25.*

This collection of 21 reprints represents various aspects of the work carried out at the Middlesex Hospital during the year 1924–25. Sir John Bland-Sutton's Lloyd Roberts lecture on Attic Salt for Gall-stones is a fine example of the mature observations of a well-stored mind. Important papers on Splanchnic Analgesia, by Mr. O. S. Hillman and Dr. R. Apperly; on Radiation Therapy, by Dr. J. H. D. Webster; and on Lupus in its Surgical Aspects, by Mr. W. Sampson Handley, are examples of the year's research work on the clinical side. Much work has been published from the various laboratories attached to the hospital. Prof. E. C. Dodds and Dr. F. Dickens contribute a paper on their simple method for the preparation of insulin by aqueous extraction. Dr. P. R. Peacock and Mr. B. D. Watters discuss certain aspects of ultra-violet rays, while Prof. S. Russ deals with the pathological basis of radiation. Reports on cases of interest, pathological observations, and certain physiological research work complete the volume.

## Calorimetry in Medicine.

Medicine Monographs. Vol. IV. By William S. McCann, Associate Professor of Medicine; Associate Physician, Johns Hopkins Hospital. Baltimore: Williams and Wilkins Company; London: Baillière, Tindall and Cox. Pp. 98. 11*s.* 6*d.*

This book gives an excellent short account of calorimetry in medicine, dealing for the most part with the extensive work that has recently been carried out on basal metabolism in disease. The author is wise enough not to give space to the description of various kinds of apparatus, though he does discuss at some length, and with clear precision, the different normal standards of basal metabolism that have been adopted, and adds useful tables. He is thus able to devote the greater part of the book to an account of the effect of disease and drugs on basal metabolism. The effect of the ingestion of food on metabolism is also dealt with and the specific dynamic action of foodstuffs. Short sections on the mechanical efficiency of the body and of the total energy requirement in disease are included, while a good bibliography concludes the volume.

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THE LANCET.

LONDON: SATURDAY, FEBRUARY 20, 1926.

## IRREGULAR MEDICAL PRACTICE.

An American medical society, as may be seen from the letter of a correspondent last week (p. 363), has decided to admit laymen to its counsels as associated members. This is a most interesting decision. Where the educated public can join in the discussions of medical men and can recognise the reasons for the medical views, formulations of the public needs with practical suggestions for meeting them will be most welcome, and any such symposium should work well. It should lead to the support by a thinking section of the public of the cause of scientific medicine by demonstrating how far the educated physician and surgeon are usually aware of what the unqualified have to teach. Medical societies founded as such are not thrown open to the public frequently in this country because the discussions are generally too technical to afford an opening for those without professional training, but there is no reason why the principle of joint debating, so happily illustrated in the success of the Medico-Legal Society, should not be carried much farther. Joint debates would certainly attract curiosity seekers, but gratification of public curiosity need not always signify a concession to pruriency, and if the contributions of uninformed sensationalism to scientific debate would imply mere waste of time the way in which medical opinions are evaluated by laymen can never be too clearly known. The debate last week in the House of Commons on irregular practice calls pointed attention to the fact that the medical profession should consider whether its relations with the lay public would not be strengthened if more occasions were taken for open comparisons of views. The voice of authority in medicine has never gone unquestioned, and enlightened medicine has never wished that it should so go, but there has been an alteration in public attitude lately, the reasons for which it is desirable to understand. Medical authority is to-day not so much questioned as denied or ridiculed. Persons who know nothing of the groundwork or the outlook of medicine communicate to the daily press dogmatic opinions upon the real causes of cancer and the true remedies for tuberculosis; persons who have never heard of the Medical Acts from which the Medical Council derives its powers vilipend that body; persons who misconstrue the whole meaning of evidence attribute to hysterical impressions the value of scientific tests; and all this, when we have made deductions for commercialism and self réclame, is published, and we may credit it as being published, with the hope of introducing methods of healing along lines that shall be quicker or surer—anyhow better—than anything which progressive science can supply through the medium of trained and tried workers.

Much of this kind of misrepresentation the medical profession realises must always go on, and the real leaders of medical thought, having the mental habits and necessary acquaintance with the difficulties of reasoning, sympathise with the plight of intellectual people in trying to come to grips with medical positions. It seems such cold good sense to adopt the form of reasoning that where orthodox medicine cannot supply a remedy, members of the public ought to be given equal status with doctors in their efforts to cure disease. But there are gaps in the logic, the fatal ones being that disease has to be diagnosed before treatment can be administered, and that symptoms do not point conveniently to specific complaints for which definite treatment has been ascertained, but supply clues to conditions which can only be followed up by those with general scientific equipment. The motion brought forward by Dr. Graham Little, Member for the University of London, in the House of Commons last week, that an authoritative inquiry should be undertaken with the object of making recommendations to Parliament for dealing with the whole position of irregular practice in medicine and surgery had its origin in the above considerations. The motion was generally criticised in the House as an intention to make medical practice of any sort, save when carried on by qualified practitioners, illegal, and we regret that the debate should have been carried to its inconclusive termination on these lines. For we can conceive that the outcome of such an inquiry as was suggested might have led to a considerable clearing up of misunderstandings and removal of friction with perpetual repercussions. And, indeed, Mr. Neville Chamberlain's intervention in the discussion made this fairly clear, although he was unable to support Dr. Little's motion by his vote. The Minister of Health explained that he could not take any cognisance, from his official position as "General of the Army" of qualified doctors, of efficiency and discipline among those who are unqualified, but he suggested that what he termed "the irregular troops" might in certain cases render valuable public service, and that it would be wrong to prevent the public from deriving advantage from any skill in therapeutics that might be available. No one can hold any other opinion, but the practical problem remains of how to obtain evidence that the contributions to medicine of unqualified people possess the qualities vaunted for them.

Discussion open and free from animus between the public and the medical profession ought to make clear that scientific medicine is not afraid of competition, but must "refuse to coöperate"—to use a stereotyped reproach of doctors—when the principles of the systems of healing are without foundation, or when the claims made for the systems or the remedies cannot be submitted for trial or are based upon secret formulæ. Because a thing is not commonly known to the medical profession it need not be wrong, but it need not be right, and some of the critics of modern medicine might well be asked to remember this. And above all things it should be understood that the Medical Acts were framed for the public protection, so that the public should possess a fully educated medical service. This does not imply that all therapeutic wisdom must reside in that trained body of men and women, and that contributions to medicine from those without that body should be made illegal; Acts of Parliament with such a term of reference would lead to the imprisonment of all chemists, all physicists, all biologists, a vast group of mathematicians, and some philosophers. But it does imply that a standard of medical efficiency has been erected by the State, and that any form of State recognition, extended to persons who do not comply with the standard, must lead to confusion and public peril.

# THE SCOTTISH HOSPITALS.

In the summer of 1924 the Secretary for Scotland appointed the Hospital Services (Scotland) Committee, under the chairmanship of Lord Mackenzie, to inquire into the insufficiency of the hospital and auxiliary services north of the Tweed, and "to make recommendations for the development and maintenance of those services to meet the needs of the community." After thorough and painstaking inquiry and the hearing of much evidence, summarised from time to time in our columns, the Committee have now issued a report which, while it shows that the hospital needs of Scotland are relatively more considerable than those of England, is a complete vindication of the voluntary system The voluntary hospitals, the Committee declare, "have won and held a special place in the life of the community. They are capable of playing an equally important part in the future. Any interference with them which would tend to impair their voluntary character would be not only unpopular but thoroughly bad policy." Building upon this bed-rock of voluntaryism, the Committee explain, with clearness and cogency, how the hospital system of Scotland can be enlarged and coördinated with the highest degree of efficiency and the lowest degree of cost. The pressure upon the 131 voluntary hospitals in Scotland is severe and increasing. With an aggregate of 8589 beds, they treat in a year well over 110,000 in-patients and 360,000 out-patients. At the end of last year the waiting-lists of the six teaching hospitals contained nearly 6000 names, and although it is notorious that such lists cannot be taken quite at their face value they do, as a fact, represent a very serious state of things. "Overcrowding has come to be the normal condition of the large hospitals" and some of the smaller ones as well, and so acute is it that, notwithstanding the placing of beds in corridors, in some places "persons suffering from malignant diseases are not always able to obtain immediate admission." Throughout Scotland the insufficiency of beds for subacute and chronic medical illnesses is universal, and is especially marked in regard to maternity and children's beds. The deplorable housing conditions of Scotland are responsible for much of this pressure and for the creation of a vicious circle which prevents its reduction. In unsuitable surroundings the private practitioner can often do little, and a disease which, with reasonable facilities, might be cured in an early stage, goes on worsening until it becomes so acute that admission to hospital is imperative. The patient endures a long period of suffering, his health may be permanently ruined, or the right treatment may come too late. This is not only a tragedy for the sick man and his family, but adds to the sum of unnecessary suffering and preventable mortality.

The Committee's remedy for a situation, which must necessarily grow worse with the increase of population and of the tendency to resort to the hospitals in maternity cases, is the provision of 3600 additional beds and the coördination of the entire hospital system. This figure includes 1000 beds for maternity and the illnesses of children, 600 of which they think ought to be, and could be, provided by the local authorities, which would leave a round 3000 to be created by the voluntary institutions. They put the cost of this additional accommodation at £1,800,000, and propose that it should be equally divided between the hospitals and the State. In their view the provision of nearly a million of money is not beyond the resources of the Scottish voluntary hospitals which, broadly speaking, are in a satisfactory pecuniary position. In 1923, the last year for which complete figures were available, they had a surplus on ordinary income and expenditure of nearly a quarter of a million; extraordinary, or capital, expenditure was little more than a third of the extraordinary income; and their accumulated funds exceeded four millions and a quarter. This is not to say that hospitals with deficits are unknown, but the figures are a clear indication of the vitality of the voluntary principle. Neither the hospitals nor the State would be called upon to provide their quotas in a lump —the expenditure would necessarily be extended over a considerable period. Even in the present position of our finances the provision of something less than a million for a primary need of the national health, spread over a few years, would be no unconscionable burden, even when added to the money that has been asked for further accommodation in England. It is recognised, however, that the provision of a large number of new beds, necessary as it is, will not of itself place the hospital situation in Scotland upon a thoroughly satisfactory footing. Coöperation is needed between the voluntary hospitals and those maintained by public money. In the eyes of the Committee the Poor-law institutions stand completely condemned. In the whole of Scotland there are only three or four of them that would compare well, in staff, equipment, and service generally, with modern general hospitals. Their isolation from the main stream of hospital development involves loss to the patients, to medical teaching, and to the training of nurses. It is, therefore, not only urged that they should be transferred to the public health authorities, but that such transfer has become inevitable. The stigma of pauperism which attaches to them is felt so acutely that even the destitute resort to them with reluctance. On the other hand, the range of the public authority hospitals is constantly widening, although the law applicable to Scotland does not permit of the creation of municipal general hospitals covering the whole field of work such as the Bradford municipal hospital. In some respects accommodation in the public health hospitals is nearly, if not quite, adequate; in others it falls short, but once the health authorities were able to absorb the Poor-law infirmaries the way should be open to a fuller coöperation than has hitherto been possible.

The report contains a number of minor recommendations which, in the aggregate, are of considerable importance. The Committee favour the provision of separate wards or blocks in the general hospitals for paying patients; the exemption from legacy duty of bequests to hospitals; the further development of the principle of workmen's contributions; and —very far from least—the making of much more substantial contributions from national health insurance funds. In 1923, notwithstanding that at least one-third of the patients were insured persons, the health insurance contributions amounted to only 1·9 per cent. of the expenditure. The inadequacy of the assistance from these great funds has long been a sore subject with the voluntary hospitals which, in view of the extent of their services to the compulsorily insured, are clearly entitled to be helped on a much more liberal scale. The execution of the policy outlined by the Committee would require an increase in the income of the voluntary institutions of nearly £300,000 a year to cover the enhanced cost of maintenance, but the proved resiliency of the system is such that there need be little fear, especially with better insurance help, of its not being forthcoming. The valuable proposal is made that there should be a central hospitals commission for Scotland, and it is obvious that if three types of hospital are to be merged into two, and real coöperation established between them, a coördinating authority would be almost essential. The report, from which the only dissentient is the Labour member of the Committee, has been well received in Scotland, and will commend itself to the general sense of a people which, since the war, has become keenly alive to the growing importance of our hospital system and to the increasing dependence of the national health upon the maintenance of the system at the highest level. Money spent upon the extension and scientific equipment of hospitals is national health insurance in the most complete sense, and no weakening of the voluntary principle is implied in the State offering it a helping hand once in a way. The help that has already been given averted a serious crisis which would not only have involved heavy loss to the Exchequer, but a still more disastrous loss in the moral and spiritual sphere. The voluntary system, thus helped over the stile, has been going forward with increased strength ever since

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# THE NATURE OF TUMOUR FORMATION.

THE results of Dr. G. W. NICHOLSON's laborious histological investigations upon tumour formation and the conclusions he has drawn from many researches already published in *Guy's Hospital Reports* and elsewhere, are embodied in the Erasmus Wilson lectures delivered before the Royal College of Surgeons of England last year, and now published in book form.[1] In the first lecture he considers the structure and functions of tumours and arrives at the conclusion that they are essentially parts of the tissues of the body, showing no fundamental difference functionally or anatomically from normal tissues. He draws attention to the dictum of E. SCHWALBE—that the gradation from uniovular twins on the one side, through acardiac and parasitic foetuses, certain monsters, teratomata, complex mixed tumours, to the simplest and most highly malignant neoplasms on the other, is so fine as to be almost imperceptible—and holds that this circumstance refutes the pretentions of every kind of parasitic theory to explain tumour formation in general. In the second lecture tissue malformations are considered under the headings of "acquired" and "developmental." Many examples are discussed, including such conditions as the metaplasia of epithelial surfaces in chronic inflammatory conditions and the nodules of ectopic pancreas frequently found in various situations. Dr. NICHOLSON concludes that acquired tissue malformations are the normal reactions of the cells to an abnormal environment. As regards developmental malformations, such as nodules of ectopic tissue, he finds that they represent mature tissues showing no predilection to grow beyond strictly physiological limits, and "give no support to the thesis that they tend to assume blastomatous characters and become the effective cause of tumour formation." In the last lecture, dealing with the sequence of events in tumour formation, he analyses the development of a fibro-adenoma of the breast, and studies a specimen of an embryonic tumour of the kidney in which could be traced the formation of tumour masses from developing glomerular tufts. The occurrence of such embryonic tumours he holds to be one of the few instances of tumour formation from embryonic cell-rests in accordance with COHNHEIM's theory; even where a tumour has apparently developed from a cell-rest he finds no evidence that the cells of such a rest were from the first more disposed to tumour formation, but believes rather that some anomaly of environment to which they were subjected at an early stage of their life-history has prevented their normal differentiation

The main question that the author seeks to answer is, "Must we believe that tumours always originate in cells that are abnormal—that are afflicted with a *vitium primæ formationis*—or are they simply the expression of one of the physiological potencies of every perfectly healthy cell in the body?" He finds no satisfactory reason for adopting the former view, but is led by his researches to believe that tumour formation is the physiological reaction of primarily normal cells to a changed environment. As regards the change of environment necessary to produce tumour formation, the question of parasites is considered. Dr NICHOLSON states that he is in sympathy with those who assume that a parasite is not present in all tumours, but only in malignant ones. To contend that every tumour harbours a parasite would, in his view, be equivalent to saying that all growth must be the result of parasitic action. In view of the recent experimental evidence in favour of a parasite in malignant tumours his conclusions are of particular interest, since they were arrived at independently and from a purely histological standpoint.

The evidence available at the present time certainly indicates that the environmental change to which the cells are subjected is the major factor in the production of the majority of tumours, and normal cells can undoubtedly be stimulated to tumour formation by suitable experimental procedures. We cannot, however, ignore the question of the predisposition of the cells of certain individuals to react more readily to tumour-producing factors. Complete uniformity in this respect amongst normal individuals or the normal cells of such individuals is not to be expected. The question remains, however, whether the normal variations are of such a degree as to become an effective factor in producing either an immunity or a susceptibility to tumour formation in certain individuals or groups of individuals. The extensive studies of MAUD SLYE[2] on the inheritance of spontaneous tumours in mice show not only that the tendency to tumour production is inherited, but that it follows strict Mendelian laws and can be demonstrated as a recessive character with almost the same precision as can such an obvious character as albinism. This worker has bred strains of mice showing, on the one hand, the development of spontaneous tumours in 100 per cent. of cases, and on the other the absence of such a tumour in 15 generations; she also produces evidence that the site and characters of the tumours can be influenced in the same manner. In view of such evidence, while admitting that the cell environment is probably the determining factor in tumour production, one can hardly dismiss from consideration inherited hypersusceptibility of the individual or of certain organs or parts of organs.

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[1] The Nature of Tumour Formation. By G W Nicholson, M.A., M.D., Reader in Morbid Histology, University of London, and Lecturer on Morbid Histology, Guy's Hospital Medical School, London: W. Heffer and Sons, Ltd. 1926. Pp 99 8s.

[2] Our Present Knowledge of Heredity. Mayo Foundation Lectures, 1923–1924 Pp. 101

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JOINT TUBERCULOSIS COUNCIL POST GRADUATE COURSES ON TUBERCULOSIS.—Dr S. Lyle Cummins, David Davies professor of tuberculosis, Welsh National Medical School, principal medical officer, Welsh National Memorial Association, will hold an intensive post-graduate course on tuberculosis, commencing April 12th next and ending April 17th, for medical men and women specially engaged in tuberculosis work. The course will consist of clinical meetings with demonstrations of medical and surgical cases at Glan Ely Hospital, Fairwater, near Cardiff, and at Cefn Mably Hospital, near Cardiff; X ray demonstration and reading of films at Glan Ely Hospital, Fairwater; daily lectures and daily pathological demonstrations at the Welsh National School of Medicine, Cardiff. The names of those wishing to attend should be sent as early as possible to the Hon. Secretary, Joint Tuberculosis Council Post-Graduate Courses, at 19, Brunswick-square, Camberwell, London, S.E. 5 ('phone Hop. 1100), from whom particulars can be obtained.

# Annotations.

"Ne quid nimis."

## THE SCIENCE OF VENTILATION.

MUCH attention has been given recently to a study of the comfort and welfare of industrial workers, particularly with regard to the atmospheric conditions necessary to promote health and efficiency. Researches under the control of the Medical Research Council and the Industrial Fatigue Board have illumined many problems of profound importance to national health, and the results have revolutionised our ideas in many directions. The trend of thought dominating the literature on the subject has centred round one particular instrument—viz., the katathermometer, the introduction of which, by Dr. Leonard Hill, marked an epoch in the science of ventilation. Much independent evidence has been brought forward of the value of the katathermometer in detecting errors in ventilation; and, although some have attempted to indicate where the instrument fails, it has become increasingly evident that no other single instrument combines so well the two variables of temperature and air velocity. Indeed, Dr. H. M. Vernon and Mr. T. Bedford, in Part III. of the report[1] just issued, show that the correlation of cooling power, as determined by the katathermometer, on air sensations—stagnancy or freshness—is 0·703 in summer and 0·790 in winter. Apart from such evidence of the value of the instrument, its chief success lies in the marked stimulus it has given to research in the problems of ventilation, not only in Great Britain but all over the world, in the United States of America, in Germany, and in Japan.

As investigator to the Industrial Fatigue Board, Dr. Vernon has initiated several lines of research in Great Britain, and the present report contains four valuable studies. In Part I. Dr. Vernon and Mr. J. J. Manley describe two new instruments designed for measurements of variations: (*a*) in the velocity, and (*b*) in the temperature of air currents. For the former purpose a new form of hot-wire anemometer was constructed, being calibrated by the katathermometer. This anemometer is very sensitive to changes of air velocity, whilst little influenced by changes in air temperature. For the study of changes in temperature a suitable thermopile was devised, which was unaffected by changes in velocity. In Part II., for which Dr. Vernon is alone responsible, we are informed that the katathermometer "factor" varies with the temperature. The necessary corrections over a wide range have been determined and will allow the low air velocities found in an ordinary room to be measured with far greater accuracy. In Part III. Dr. Vernon and Mr. Bedford (assisted by Mr. C. G. Warner) prove that to produce a given sensation of air movement in winter required a cooling power about one unit higher than that required in summer. This was due to acclimatisation and the mean cooling power (in relation to a given sensation) was found to change gradually from month to month as the mean temperature changed. A considerable allowance has thus to be made for acclimatisation; if a cooling power of 6 is reasonable during mild weather, one of 5 may be equally reasonable during hot weather, and one of 7 during cold weather. The effects of oscillations in air movement and temperature also were explored by means of the specially designed instruments already mentioned. It was found that whilst the sensation of air movement was apparently increased by increasing the oscillations of air velocity, no clear proof was obtained of its increase by oscillations of temperature.

The concluding section of the report records a series of careful and patient observations by Dr. Vernon upon himself, which indicate that in order to induce an actual cooling of the overheated body of a man engaged in hot and heavy work, it is of most importance to reduce the temperature, and next in importance to reduce the clothing, whilst an increase of air velocity has but little effect; however, if the body be naked or only clothed in vest and trousers, the effect of moving air on the cooling-rate is considerably greater than when the body is more warmly clothed. Observations made in a new wind tunnel at the National Institute for Medical Research have, we understand, shown that if the velocity is great enough to drive air through the clothes, and so ventilate the clothing, velocity has a very great effect on the comfort of the warmly clad man. These results extend those given by Dr. Vernon for his step-climbing experiments.

## ECZEMA AND URTICARIA.

A RECENT discussion at the Royal Society of Medicine[1] showed how obscure the problem of eczema still is. The term eczema does not even describe a recognised clinical entity; originally restricted to a watery eruption of the skin, it has been expanded to cover almost any form of skin trouble of unknown origin, and the various schools differ so widely in their definitions of clinical eczema that, for practical purposes, each observer recognises his own particular variety and no other. Osler's text-book contains no definition of eczema. Obviously the whole problem needs restating, and the authority who attempts this must clear the ground at the clinical end before he proceeds further. Dr. Erwin Pulay's monograph, "Ekzem und Urticaria"[2] is a summary of the most recent work in this branch of dermatology, and deals comprehensively and impartially with the leading theories of the causation of the manifold types of reaction that are classed as eczematous. The key-symptom he holds to be the characteristic irritating itch, but the watery nodules which Blaschko and others regard as pathognomonic he does not consider inseparable from eczema. Many forms of undoubted eczema do not show them and they are conspicuous in many conditions, such as impetigo and the pemphigus group, that are completely distinct from eczema. He draws freely on the results of Weidenfeld, and quotes his classification into the three groups of anæmic, seborrhœic, and psoriatic eczema. The second of these is by far the most frequent type and presents the clearest symptoms, which do not include the formation of watery nodules. It results from a peculiar constitutional condition of the skin and is often associated with alimentary disorders. The third division is the protean dermatitis by which eczema manifests itself in psoriatic subjects.

Eczema is a definite clinical skin reaction that requires two factors for its production—an exciting agency and a diathesis. All efforts to reduce it to a single ætiological formula have, however, failed, especially the parasitic theory of Unna. Both its precipitant and its diathesis vary with the individual, and some eczema subjects respond to all kinds of skin irritants and some only to one. The latter are probably always victims of an anaphylaxis, and their reaction is an antigenic defence. The physiological basis of every eczema is an abnormal sensitivity both of the skin and of the nerve-endings; that of the latter can be caused by almost any lack of metabolic, endocrine or nervous balance, and that of the former by external irritation, which will have more effect on some skins than on others. This may explain the frequent liability to eczema of persons with a "rheumatic" diathesis. One form is undoubtedly scorbutic and yields to treatment by vitamin C. Urticaria is distinct from eczema, and is founded on a constitutional or anaphylactic sensitivity of the capillary vessels. An internal excitant will produce urticaria if the capillaries are sensitive, and non-eczematous dermatitis if the epidermic cells are sensitive; if the sensitivity is in the nerve-endings it will give pruritus and, if the epidermis is sensitive, as it is when subject to external irritation, it will give eczema. Both urticaria and eczema can be hæmatogenous, but eczema only on a site where it has appeared before. The excitant of primary eczema is nearly always scratching of the parts where the nerve-endings are excited. Pruritus is always a part of the clinical picture of eczema, and its origin is usually endogenous; it may, however, be caused by lice, scabies, or local infectious conditions, and may develop into eczema if the skin is injured mechanically. Idiosyncratic eczema and urticaria are comparatively rare. They appear only when one particular organ or system is excited, and are distinguished thereby from the anaphylactic manifestations, with their attendant eosinophilia and general vagotonic symptoms.

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[1] Medical Research Council, Special Report Series No. 100. Methods of Investigating Ventilation and its Effects. By H. M. Vernon and Others. London: H. M. Stationery Office. 1926. Pp. 71. 2*s.*

[1] THE LANCET, 1925, ii., 1333.

[2] Ergebnisse der gesamten Medizin, Prof. Dr. Th. Brugsch, 7er Band, Urban und Schwarzenberg, 1925.

Whether or not eczema and urticaria are curable depends, in Dr. Pulay's view, on whether or not they have caused irreversible changes in the cell-albumin. The fixation of an adaptive change, and so the perpetuation of each step forward in evolution, is effected by an irreversible change in this substance and, if a pathological process continues long enough, the cells cannot recover their normal function. The conditions of physiological life give ample scope for reversibility and a minimum opportunity for any process to become fixed. No physiological change occurs, however, without some alteration in the composition of the cell-proteins, and the mechanism of the eczema reaction will have ultimately to be solved by the colloid chemists.

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## ANTIRABIC INOCULATION.

THE strict Pasteurian method of inoculation with rabbits' spinal cord, dried for varying periods and believed to contain a truly attenuated as opposed to a partially destroyed or merely diluted virus, has been superseded in India by the use of a vaccine killed with carbolic acid. This innovation was originally due to the work of Fermi begun some 20 years ago. The method was reinvestigated by Semple in India in 1911 and has been approved by Harvey and McKendrick. It was adopted at the Kasauli Institute in 1912 in place of the dilution method of Hoegyes which had been used there since 1907. The report[1] by Dr. G. Stuart and Dr. K. S. Krikorian for the two years ending April 30th, 1925, on Antirabic Procedure in Palestine, records the treatment with carbolised vaccine of 1020 persons with 0·82 per cent. mortality. Of these, 420 were presumably at risk and their death-rate was 1·47 per cent. The preparation used is a 2 per cent. emulsion in distilled water of brain from a rabbit dying of rabies on the ninth day after inoculation with fixed virus. To this is added 1 per cent. phenol and it is then kept at 37° C. for 24 hours, and subsequently diluted with an equal quantity of salt solution and stored in the ice-chest. Its efficacy is considered to remain unimpaired for three months, after which period the stock is renewed. In the first of the two years the above vaccine was diluted further with an equal quantity of saline before inoculation, but since May, 1924, the full strength of 1 per cent. brain material has been used. The virus in such a vaccine is apparently quite dead since large doses to rabbits and eventually to man in the course of treatment do not infect. In all cases of exposure to infection a dose of 5 c.cm. is given daily for 14 days, 2·5 c.cm being inoculated subcutaneously on either side of the abdomen. The advantages claimed for the method are efficacy, safety, cheapness, simplicity of manufacture, the good keeping qualities of the vaccine, the ease with which it may be distributed, and the consequent accessibility of the treatment. Experiments on rabbits and the clinical results demonstrate its harmlessness, and further experimental evidence is adduced that the preparation will, in some instances, but by no means always, protect rabbits against large doses inoculated subdurally. Evidence of the prophylactic power of carbolised rabies virus has also been brought forward by Kondo, and recently Schlingmann has given details[2] of experiments in which a single dose of a similar vaccine given subcutaneously protected dogs against 5 to 200 infective doses given subdurally 21 days later. These results should encourage further search for a yet more potent dead vaccine.

## SANOCRYSIN TREATMENT IN BERLIN.

THIRTY-FIVE years have passed since Koch made his first report on tuberculin. Older physicians remember very well the rush of patients from every part of the world to Berlin for a cure by the new remedy, and the disappointment which followed for those who had spent their last savings on that journey. Since then there has been a good deal of scepticism when new treatments for tuberculosis are announced, and sanocrysin, like other remedies, has been received with reserve in Berlin, as our correspondent there informs us. For the examination of the new compound a committee was formed, consisting of Prof. F. Neufeld, head of the Robert Koch Institute; Prof. F. Kraus, ordinary professor of medicine and head of the medical clinic in the Charité Hospital; Prof. A. Czerny, head of the university clinic for children's diseases; and Prof. U. Friedemann, head of the department for infectious diseases in the Virchow Hospital. After experiments carried out on animals, Prof. Neufeld came to the conclusion that against strains of tubercle bacilli more virulent than those obviously used by Prof. H. Møllgaard, the results were not so favourable. He is of opinion that a curative effect may be obtained when the tubercle bacilli are easily accessible to the compound; but this is not as a general rule possible in human beings where the tuberculous centres are surrounded by a thick wall of tissue. In the clinical test albuminuria was sometimes observed after the administration of the compound, when the dose was too large; and the reaction varied very much in different patients. Only serious cases, in which other remedies had failed, were selected for trial, and this rule was especially kept in the case of children, in whom slight infections often clear up without any special treatment. Twelve children were attended by Prof. Czerny, of whom three suffered from tuberculous meningitis and three from miliary tuberculosis. They were chosen because their tuberculosis was certainly not of old standing and was therefore suitable for sanocrysin treatment. Only one of them is still alive, and he is not in good health. It seemed that in children the compound had a rather unsatisfactory influence on the course of the illness, although no definite judgment could be given. In the clinic of Prof. Kraus the remedy was administered in nine cases; three of them died, one was not improved, and in one the administration had to be interrupted. In four cases, however, a considerable improvement was obtained. It is remarkable that the cases which improved were of an aggravated kind, and had not profited from other treatment. In the Virchow Hospital 54 cases were treated by sanocrysin. In some of them the fever ceased, the weight increased, and the state of the lungs became more satisfactory. The discharge diminished, and in seven of the cases the tubercle bacilli disappeared. The patients of the Virchow Hospital belong mostly to the poorer classes, and sometimes improve without any special treatment other than the better care and food they got in hospital; but the administration of sanocrysin had a marked influence in 10 out of the 54. According to Prof. Friedemann it is worth while to administer sanocrysin, although it cannot yet be described as the remedy for tuberculosis. The committee came to the conclusion that the compound ought not to be tried outside hospitals, because its dangers are not yet fully ascertained; that certain patients show an idiosyncrasy to it; that the first doses should not exceed 0·25 g.; that the intervals ought not to be made too short; that fresh exudative cases are the most suitable for the treatment; and that it might be administered in hæmoptysis to prevent the bacilli spreading throughout the lungs.

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[1] Ann. Trop. Med. and Parasitology, 1925, xix., 391.

[2] Jour. Amer. Vet. Med. Assoc., December, 1925.

## THE CLASSIFICATION OF MENTAL DISEASE.

IF the classification of physical disease is obscure, it is not surprising that that of mental disease should be almost inchoate. Mental disease is a reaction of the whole personality and, in the words of Bianchi, "as a sphere with various designs made to revolve on different axes presents a new aspect at every turn, so the field of the mental affections presents a different picture on every classification." These designs never correspond, and a classification made from one aspect only will be stultified by one made from another equally vital aspect. A purely ætiological distinction is useless, because the same cause will produce completely different results in two different individuals. The bases of pathology and anatomy on which all classification is founded in general medicine will only support a very small part of the structure that has to be built out of a great and at present almost unrelated mass of clinical material. There is no doubt that patient research will enlarge this basis. Possibly in fullness of time it may become large enough to support the whole structure. Meanwhile, however, psychiatrists need a common classification to enable them to work together, and students need one to give them landmarks by which they may direct their study with a minimum of confusion. A survey of the current text-books on psychiatry makes it appear at first sight that the classificatory schemes used by different authorities have very little in common, but a closer scrutiny will show that, thanks chiefly to Kraepelin, they nearly all recognise three main groups of mental affection. The first includes those due to an evolutionary psycho-cerebral defect, the second those caused by infective, autotoxic, and toxic agents in properly evolved individuals, and the third those with an organic basis, a diffused or localised pathological lesion of the brain. This scheme is, in its beginning, ætiological, and it is obvious that these divisions are by no means water-tight compartments and that many conditions are common to two if not to all of them. An idiot is as liable to a psychosis of toxic origin as a fully evolved person, and evolutionary defects of the brain are very often due to organic lesions such as those caused by inherited syphilis and the traumata that occur during parturition or the early years of life. Nevertheless, whatever may be the clinical picture, the criterion upon which each of the groups is based is the most prominent feature of the condition, and this broad division is not incompatible with the clinical criterion that must govern both the skeleton and the details of a true classification.

Dr. C. C. Easterbrook, in his Morison lectures for 1925, which have just been reprinted in book form,[1] has put forward a classification based on 20 years' intensive study not only of the clinical condition of mental invalids, but also of their family history, their past bodily and mental history and environment, and often their after-history or post-mortem pathology. He classes the psychoses under the five headings of Congenital, Constitutional, Organic, Organismal or "Bodily," and Toxic and Energic. The first group deals with the various forms of amentia, the second with the biogenic psychoses, and the psycho-neuroses from which psychosis develops. The third group contains the psychoses due to sclerosis, to cerebral tumour, hæmorrhage, embolism, &c., to cerebral syphilis, and to other gross nervous lesions. The fourth group are those caused by infections and associated with physical disease, and the fifth contains the psychoses resulting from exogenous poisons and traumata. One disadvantage of this classification is that it does not recognise the essential similarity between all the psychoses of toxic origin, whether the toxin is endogenous or exogenous. The common factor between them is the biological defence mechanism of confusion, clearly one instance out of many in which the clinical consideration far outweighs the ætiological. For this reason his fifth group seems to be unnecessary; the psychoses due to poisoning by drugs or chemicals would be better classified in a general toxic group, and those due to trauma are allied both ætiologically and clinically with other psychoses of organic origin. It is also very doubtful whether the psychoses developed in association with many physical disorders have any clinical connexion with the physical disorder at all. Sir Maurice Craig devotes a special chapter in his "Psychological Medicine" to these secondary mental disturbances, and points out that very few physical disorders, other than the infective states, exert nearly so much influence on the form of the accompanying psychosis as does the patient's own constitution. If they have any common factor it is more probably that recently noted by Freud in his theory of "pathoneurosis"—i.e., the tendency of any physical disorder to produce a psychotic reaction by attacking the self-regarding sentiment. This would place them in the biogenic group.

It would be easy to multiply criticism of an individual classification, and it is a merit of Dr. Easterbrook's that it contains many points which challenge accepted thought. Complete success is unlikely to attend any attempt at detailed classification of mental diseases until pathologists supply us with the essential data. In the meantime we may have to be content with the broad outlines of Kraepelin's scheme, determining the details by the factor which he rightly held to outweigh all others—namely, the clinical.

## SPIRITUAL HEALING AND MODERN MEDICINE.

THE paper read by Dr. F. G. Crookshank on this subject at a meeting of the Hunterian Society, when various ecclesiastical authorities took part in the debate, was reported in abstract in THE LANCET of Nov. 14th, 1925. The paper is now published in full in *Psyche* for January, 1926, and may therefore be studied by those who are interested in the subject and who found in the abbreviated version of his words an invitation to closer study. We shall not, we think, misinterpret his position if we say that he is greatly concerned with what is, nowadays, generally agreed to be of vital importance—namely, the problem of the relations between science and philosophy, or metaphysics. He holds, indeed, that the general neglect in medicine of first principles has led many to declare that all considerations of a metaphysical nature are vain at the very moment that they themselves base their theories and beliefs on a form of metaphysics all the more dangerous because not recognised. Medical men who are materialists in metaphysics and realists in logic do come, almost insensibly, to ignore the importance of phenomena that they cannot "explain" in terms of their own prejudices, and so to despise the observations of others who do seek, honestly, to "explain," in terms of idealism or religion, phenomena that have been the subject of attention throughout the centuries. It is, perhaps, time that in medicine there was some change of orientation. As Dr. Crookshank suggests, so long as the dog and cat know when and where to seek the grass they eat when ill, and so long as this knowledge is "unexplained," it cannot be said that the healing art is entirely comprised by a knowledge of physical signs and post-mortem appearances. The antithesis between the functional and the organic case of disease still, perhaps, dominates too much orthodox teaching, but cases are now restored to health as a result of treatment involving recognition of the predominance of the spiritual or mental factor, which, a few years ago, might have been subjected to a routine of operative interference sometimes unnecessary and often futile. Dr. Crookshank suggests that recognition of the importance of the spiritual factor may come about, in these latter days, as a result of the attention now being paid to the tenets of psycho-analysis, and that ideal, of course, lies behind the intelligent part of the support extended to this teaching. And, in this connexion, it is worth while calling attention to the synthetic work of Blondel (too little known in this country) wherein it is attempted to reconcile the points of view of Freud, of Jung, of Adler, and of the Church by the adoption of a formula which implies the origin of every "conflict" in "la conscience morbide." Dr. Crookshank writes with clearness and learning on matters whose difficulty calls for just those qualities if they are to be dealt with in any useful manner.

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[1] Mental Invalids. Oliver and Boyd. Pp. 86. 5s.

## IMPAIRED RENAL FUNCTION.

THE investigation of early renal disease and of minor degrees of renal deficiency has received considerable impetus in recent years from the introduction of more perfect methods of chemical investigation. Whether these methods have led to marked improvement in early diagnosis and increased accuracy in prognosis is more questionable. Even now, unhappily, the methods in use only give information when the renal damage has already become extensive. It has been estimated that a faint trace of albumin in the urine at the age of 40 or over represents a death-rate from nephritis ten times higher than the normal, a trace increases this rate to 30 times the normal, whilst with large amounts plus casts the rate is about 50 times the normal. Every physician has seen amongst his patients cases with a trace of albuminuria, associated with a normal blood pressure, in whom blood analysis and such tests as the urea-concentration test proved indecisive, when, nevertheless, uræmia or fatal arterial changes followed in a surprisingly short period. It would seem that neither the clinic nor the laboratory can yet give us the information we require concerning these cases. An interesting investigation with a view to improving our knowledge in this direction has been recently published by Dr. Nellis B. Foster,[1] of New York. In nine patients who had had one kidney removed he carried out very complete tests. The patients selected were all under 40 years of age, without signs of disease in the remaining kidney, and the inquiry was in each case undertaken within three weeks of the removal of a diseased kidney. In this way it was hoped to exclude kidneys with changes due to disease or senility and also without suspicion of compensatory hypertrophy; but as tuberculous disease in the remaining kidney can never be wholly ruled out, Dr. Foster rightly stresses the results given in these cases where the trouble for which nephrectomy had been performed was not tuberculous. The tests chosen were, first, Volhard's water-excretion test, consisting in the administration of 1500 c.cm. of water drunk in half an hour before breakfast, a total excretion of at least a litre during the following four hours being considered necessary to establish normality; secondly, the patients were for 24 hours given an ordinary diet without any fluids—that is, neither drinks nor soups of any kind—but otherwise a normal diet. In such circumstances a normal man will at the end of the test period usually void urine of a specific gravity of 1030 or higher; in the nephrectomised cases only one case yielded a urine of such density as to be considered absolutely normal. The third test employed was that of ascertaining the ratio (urea in one hour's urine) ÷ (urea in 100 c.cm. of blood) which, according to Addis and Drury,[2] averages 50 and should not fall below 34 in normal persons even when the urea in the blood has been artificially increased. The cases investigated by Dr. Foster were given 30 g. of urea in a litre of water before the test, and it was then found that in every case the ratio given fell below Addis's standard of normality. In cases where the test was repeated at a later date the result indicated a considerable return towards the normal, a result which points either to some hypertrophy of the remaining kidney or to the kidney having suffered some toxic depression at the time of the original test. Reviewing the results as a whole, the author feels that the demonstration of renal deficiency in persons with only one kidney is only doubtfully revealed by these tests, the ratio after giving urea being the only test pointing at all consistently to any limitation of kidney function.

## THE DEFENCE OF EXPERIMENTAL MEDICINE.

AN account of the history of the Research Defence Society, founded 18 years ago, is given in the current number of the organ[1] of the Society, and may be recalled for the benefit of those of our readers to whom the story is not familiar. It arose out of a committee organised by Prof. E. H. Starling to collect evidence for the Royal Commission on Vivisection. When all the evidence had been set out and published, enthusiasts such as Mr. Stephen Paget were not prepared to let good machinery be broken up. A society was formed in order to bring about a better understanding of the value of medical research, and to expose false statements made with the object of limiting and hindering those animal experiments on which its progress so largely depends. The Society throve progressively during the first six years of its life, and in 1914 numbered over 5000 members and associates. The war years demonstrated the value of prophylactic methods in protecting whole armies from disease, and broke down much of the prejudice against the use of experimental animals for the production of sera, for the standardisation of biological products, or for the testing of remedies. While the objects of the Society were thus being realised, its membership decreased and during the war its activities were necessarily curtailed. A revival of these appears to be taking place, for three debates are reported in the January issue of the journal. Probably a better method of propaganda also employed by the Society is the popular lecture, because the public are eager to learn of new discoveries in medical science even when these have no immediate bearing on prevention or treatment of a specific disease. The modern doctor tends to take for granted the need for observations on animals and sometimes neglects to equip himself to meet the arguments still advanced against them. The Research Defence Society exists to uphold and defend experimental medicine and ought to have a membership as wide as the Medical Register.

## NEOPLASMS OF THE TESTICLE.

SINCE the classic paper of Wilms in 1896, it has been generally recognised that the mixed tumours of the testicle are teratomata. Data have slowly accumulated to show that, with the single exception of the rare testicular "dermoid," the teratomata of the testicle are extremely malignant, and this malignancy has been held to be a carcinomatous or sarcomatous degeneration of a previously benign tumour. From the study of some 95 tumours of the testicle, Mr. H. W. B. Cairns, first surgical assistant at the London Hospital, has decided that this view is incorrect. Primary tumour and its metastases, he states, exhibit the same remarkable power of differentiating to form histologically benign tissues, exactly similar in structure to the tissues of the normal fœtus. The teratoma retains its biological characters in its metastases and is, therefore, inherently malignant. Mr. Cairns laid his conclusions before the Royal College of Surgeons in a Hunterian lecture on Feb. 12th. The series of cases he has collected is unusually large and the opinions formed are of corresponding importance. Only three cases of true hypertrophy of the breast accompanying tumours of the testicle have previously been recorded; Mr. Cairns's series contains another three. This hypertrophy is of interest as an indication of the fœtal nature of teratomata of the testicle; further evidence is afforded by the occasional discovery of chorionic remnants in the tumours. Considerable controversy has raged over the nature of the common spheroidal-celled tumour of the testis, variously described as alveolar sarcoma, carcinoma, or séminome. In 1911 Ewing claimed that this tumour was teratomatous, but his view has not been generally accepted either in this country or in France. The London Hospital cases, however, provide overwhelming evidence that the spheroidal-celled tumour belongs to the teratoma group. Cells morphologically identical with the spheroidal cells are found in great profusion in almost every teratoma of the testis; and tumours occur which are, even to the naked eye, mixtures of teratoma and spheroidal-celled tumour. The exact position of the spheroidal-celled tumour in the teratoma group is not quite clear. Ewing has contended that the spheroidal-celled tumour is formed by overgrowth of one element of a pre-existing teratoma, but his view receives no support from this series of cases. On the contrary, the evidence from the London Hospital suggests that the cells of the spheroidal-celled tumour are totipotent and that they arise in the seminiferous tubules. Mr. Cairns's series throws suggestive light on the much-discussed relationship of injury to tumours of the testicle. He considers it highly probable that the part played by injury is not to initiate the neoplastic process, but rather to stimulate the more rapid growth of a pre-existing but hitherto unobserved tumour. Approximately one-third of the cases are cured by operation, and the London Hospital figures are slightly favourable to the radical operation as compared with the more simple operation of orchidectomy. We propose to publish Mr. Cairns's interesting lecture in a later issue.

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[1] Arch. Int. Med., 1925, xxxvi., 884.
[2] Jour. Biol. Chem., 1923, lv., 103.

[1] *The Fight against Disease.* Macmillan. 6d.

THE Royal College of Physicians of London has issued the following programme of memorial lectures. They will be held during the spring on Tuesdays and Thursdays at 5 P.M., and any member of the medical profession will be admitted on presentation of a visiting card. Prof. W. W. C. Topley will deliver the Milroy Lectures on March 2nd, 4th, and 9th, and has chosen Experimental Epidemiology as his subject. Dr. Bernard Hart will follow on March 11th, 16th, and 18th with Goulstonian Lectures on the Development of Psychopathology and its Place in Medicine; whilst on March 23rd, 25th, and 30th Sir Thomas Horder will deal with Endocarditis in his Lumleian Lectures. None will be held in April, but on May 4th and 6th Prof. Hugh MacLean will give two Oliver-Sharpey Lectures on Carbohydrate Metabolism in Health and Disease, and on June 8th, 10th, 15th, and 17th Sir Thomas Lewis will describe in four Croonian Lectures his Observations upon Blood vessels of the Human Skin.

THE memorandum addressed to the Ministry of Health by Sir George Newman in July, 1924, on Public Education in Health, has been reprinted, the demand for it having been exceptional. No alterations of substance have been made to the pamphlet, which we have abstracted (THE LANCET, 1924, ii., 671), but the information has been brought up to date, and reference is made to that section of the Public Health Act (1925) which empowers local authorities to undertake health education by means of the publication of information, the delivery of lectures, and the display of pictures. The subjects of tuberculosis, venereal diseases, and infant welfare have perhaps received the most organised attention on the part of local authorities, but many other aspects of public health have also been the subject of propaganda. These include cleanliness, domestic sanitation, the prevention of infectious disease, and the hygiene of childhood. Sir George Newman notes the just claim made by medical officers of health that their annual reports are a form of propaganda work which is not sufficiently read and appreciated by the public. These official reports, of which prescribed statistics and routine tabulations form only a part, afford opportunities of guiding the local authority and the public and are readable and informative documents, to which we are constantly calling attention.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLXI.

## THE TREATMENT OF CHRONIC TONSILLITIS.

### I. CHOICE OF METHODS IN CHRONIC TONSILLITIS.[1]

THERE are two types of tonsil: (*a*) The pedunculated, in which the space between the pillars of the fauces is wide and the fold of mucous membrane passing from the anterior pillar on to the tonsil is poorly developed, so that a large part or even the whole of the medial aspect of the tonsil is exposed. (*b*) The embedded tonsil, in which the opening between the pillars is narrow and the plica is well developed, so that only the lower portion of the inner surface is exposed. This type of tonsil appears small on first inspection and it is only when the patient is made to gag and the tonsil is outlined through the palate that its true size becomes apparent. The efferent lymphatics of the tonsil pass to the jugulo-digastric or tonsillar gland, which lies just behind the angle of the mandible.

### *Physiology.*

The faucial tonsils form part of the lymphatic ring which guards the entrance to the alimentary and lower respiratory tracts. In the germinal centres lymphocytes are formed and some of them migrate through the epithelial lining into the crypts and act as phagocytes. Adam compares the tonsil to a sponge which is "wrung" by the contraction of the surrounding muscles during the act of swallowing. When the muscles relax the tonsillar sponge takes up some of the fluid and bacteria from the mouth. The tonsils are most active in early life and form a first line of defence against the invasion of infectious disease. The crypts probably act as culture tubes from which toxins are absorbed so that the tonsils may be regarded as organs producing active immunity —i.e., as the vaccine laboratories of nature (Digby). When the tonsils are themselves diseased they no longer act as defensive organs but are a source of danger. If, as some have supposed, the tonsil had an internal secretion, we should expect that the ill-effects of enucleation would long ago have become manifest, but this has not been the case.

### *Pathology.*

Medical examination has shown that in this country from 6–10 per cent. of school-children suffer from such hypertrophy of the tonsils as to necessitate enucleation. Hypertrophy and sepsis are commonly associated (Brown Kelly). Attention to the hygiene of the mouth and teeth has, however, a beneficial effect on tonsillar enlargement. Infection may be limited to the surface or may spread beneath the epithelium of the crypts (lacunar tonsillitis). The capsule may be penetrated and an abscess may arise in the peritonsillar space above and lateral to the tonsil. In many cases the tonsil trouble is found to date from an attack of diphtheria, measles, or scarlatina; indeed, many regard scarlatina as a streptococcal blood infection, the tonsil being the main or only point of entrance. Rheumatic fever is often preceded by tonsillitis and the streptococci of rheumatism have been recovered from the tonsil and, on inoculation into rabbits, have produced endocarditis. Chorea has also been associated with tonsillar infection. The circulating virus selects a certain tissue for its growth, probably as a result of sensitisation (Brown Kelly). Newkirk rightly points out that many people have marked pyorrhœa or grossly infected tonsils and yet live to a ripe old age. All depends on the patient's power of resistance.

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[1] An article in this series by Mr. Fraser on Tonsillectomy in Adults and Children will appear next week.

### *Bacteriology.*

The following organisms have been found on bacteriological examination of the tonsils (Wall): streptococci, 90 per cent. (these organisms are the cause of lacunar tonsillitis and peritonsillar abscess); *Micrococcus catarrhalis*, 94 per cent.; *Staphylococcus aureus*, 60 per cent.; pneumococci, 50 per cent.; diphtheroids, 30 per cent.; *B. influenzæ*, 18 per cent.; *B. coli*, 8 per cent. When hypertrophy is the indication for enucleation, less than 1 per cent. of tonsils show tuberculosis, but when the cervical glands are markedly enlarged, 38 per cent. are tuberculous (Carmichael). Mitchell has shown the close connexion in Edinburgh between tuberculous milk and tuberculosis of the tonsils and cervical lymph glands. He finds that 88 per cent. of cases of tuberculous cervical adenitis are due to infection spreading from the tonsil. In these cases the tonsils themselves are frequently normal in appearance.

### *Local Indications for Enucleation.*

These include: (1) Frequent attacks of tonsillitis. (2) Peritonsillar abscess; some surgeons recommend enucleation in the presence of such an abscess in spite of the difficulty of getting the patient's mouth open widely and the risk of excessive hæmorrhage. They point out that only one operation is required, that the abscess is most efficiently drained by enucleation, and that the dissection has already been partially accomplished by the abscess formation. It is better, however, to wait till the "quinsy" has subsided. (3) Great enlargement causing obstruction to respiration and swallowing. (4) Well-marked enlargement of the cervical glands which does not subside after an attack of tonsillitis. (In many of these cases of apparently "acute" adenitis the condition is really tuberculous.) The fact that the jugulo-digastric gland can just be palpated is not sufficient indication for tonsillectomy, as this condition is present in the majority of children. (5) Tuberculous cervical adenitis, involving the tonsillar and neighbouring glands. (6) The presence of pus or foul-smelling material in the tonsil crypts. In such cases there is, as a rule, marked congestion of the anterior faucial pillars. The condition of the tonsil crypts may be ascertained by pressing on the palate lateral to the tonsil with Tilley's instrument or by employing a cup-shaped glass suction tube fitted with a rubber bulb. The fact that a little cheesy material can be squeezed out of the crypts on pressure is not sufficient indication for enucleation, as this condition is found in from 30 to 50 per cent. of people who do not complain of any throat trouble. (7) Diphtheria carriers.

### *Indications Associated with the Presence of Disease in Other Parts of the Body.*

In cases of disease of other parts of the body the tonsil may be the focus of infection. Here the indications for enucleation are more difficult to state. The patient's age and general health must be taken into account. Other sources of septic infection should be sought for and removed—e.g., in the teeth, paranasal sinuses, genito-urinary and alimentary tracts. It is not desirable to remove apparently healthy tonsils merely because no other cause can be found for the patient's trouble. There should be definite evidence that the tonsils are themselves diseased. The "focus of infection" theory is rather overdone at present. One sees patients who have had all their teeth extracted, their appendices removed, their tonsils enucleated, and yet are no better, or even worse, for all this operative interference. The case is clear, however, if a history is obtained such as that, following an attack of tonsillitis, the patient has suffered from rheumatism.

### *Contra-indications to Operation.*

Contra-indications to operation are as follows. Fever: The temperature should always be taken on admission and again before operation, as the child may be developing an infectious disease. *Hæmophilia*: The surgeon should inquire as to any history of bleeding, and, if necessary, test the clotting time of the blood. Acidosis: The urine should be tested. This can only be done if patients are admitted to hospital on the day before operation. Advanced rheumatoid arthritis, pulmonary tuberculosis, diabetes (serious cases), and arterio-sclerosis.

### *Methods of Choice in Children and Adults.*

There does not appear to be any useful "halfway house" between gargles such as peroxide of hydrogen (two teaspoonfuls of a 3 per cent. solution in a large wineglassful of cold water) or phenol sodique on the one hand, and enucleation of the tonsils on the other. Slitting up or cauterising the tonsil crypts, separation of the plica triangularis (circumcision of the tonsil), and the application of caustic pastes have not found much favour. Reports on the results of X ray treatment are decidedly adverse. Before operating, the patient's mouth should be rendered as aseptic as possible; in adults especially the teeth should be attended to before the tonsil operation. All specialists have felt the difficulty of determining in many cases whether the condition of the tonsils was such as to call for enucleation. Indiscriminate enucleation has brought the operation into some disrepute. An opinion should not be given during or immediately after an attack of coryza. Conservative treatment—e.g., nose washes, inhalations, and gargles—should be prescribed and the child seen again later. There are seldom any indications for enucleation before the age of 3 or 4 years, though adenoids may have to be removed in infants. (Tonsils should not be enucleated merely because adenoids are being removed. If the tonsils become greatly enlarged and give trouble after the adenoid operation they can be dealt with later.)

The old operation of tonsillotomy, or, more correctly, partial tonsillectomy, has been abandoned by almost all specialists in Anglo-Saxon countries because it was so often followed by recurrence of tonsillitis and even peritonsillar abscess. The question, therefore, of the choice of operation resolves itself into a dispute as to the respective merits of the guillotine and the dissection methods. Some hold that practically all tonsils can be enucleated with the guillotine, while others believe that dissection is the only correct procedure. Most surgeons, however, find that each method is suited for certain cases—i.e., that in practically all children, certainly in those who have not been previously operated upon, the tonsils can be entirely enucleated with a suitable guillotine. In only a few cases, where the tonsils are adherent to the surrounding structures, do they require to be dealt with by the dissection method under a general anæsthetic. It is true that in a very small proportion of cases the enucleation is not quite complete—a piece of the upper or lower pole being left; this error can, as a rule, be rectified with the guillotine if it is discovered before the child comes out of the anæsthetic. In adults, on the other hand, the dissection method, with the aid of local anæsthesia, is to be preferred. Such cases have very often had one or more attacks of peritonsillar abscess which have given rise to adhesions and render the operation difficult.

It is a mistake to say that only *specialists* should enucleate tonsils. The truth is that *only those who can should do the operation*. A man or woman with sufficient manual dexterity, who has held the post of house surgeon or clinical assistant for six months in an ear and throat department, is quite competent to perform the Whillis-Sluder operation or to enucleate by the dissection method.

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# Special Articles.

## IRELAND.

(FROM OUR OWN CORRESPONDENT.)

### *Action against a Medical Man.*

AN action was heard in Dublin last week before Mr. Justice Hanna, in which Miss R. de Cadiz sued Dr. T. G. Moorhead, Regius professor of physic in Dublin University, for damages for assault. She alleged that on Oct. 3rd, 1924, when she was a patient in Monkstown Hospital suffering from severe spinal injury and fracture, the defendant, without her authority or consent, entered the private ward in which she was, and, despite her protests, assaulted her, whereby she was seriously injured in her health. For loss due to inability to attend business she claimed £1000. From the evidence it appeared that Dr. Moorhead, in his capacity of consulting physician to Monkstown Hospital, was invited by Dr. R. de C. Wheeler, one of the medical officers to the hospital, in whose care the plaintiff was, to see her in consultation. He made a physical examination in the presence of Dr. Wheeler and of the matron. The plaintiff declared that the examination was made roughly and without proper consideration. This was denied, not only by Dr. Moorhead, but by Dr. Wheeler and the matron. They stated, moreover, that the lady coöperated with Dr. Moorhead throughout the examination, and that the examination was the routine examination that any physician would make in a case of the kind. Evidence was given by several medical men that the patient had no signs of physical injury to the spine either before or since her examination by Dr. Moorhead, and that in reality she suffered from hysteria. After two days' hearing the jury returned a verdict that "there was no assault," and judgment was given for the defendant with costs. In his charge to the jury, Mr. Justice Hanna stated the law as regards the rights of patients and medical men in an examination. The legal basis, said his lordship, was the consent of the patient. When a patient brought in a doctor there was either an implied or an expressed consent that the doctor should be entitled to do all such acts as he considered reasonably necessary in his opinion, having regard to the state of medical knowledge and his own experience, to discharge his duty in making a diagnosis. But it was always subject to this—that, if he proposed to do any act dangerous or risky or painful to the patient, he should give the patient such information as would enable the patient to give or withhold consent.

The case has drawn attention once again to the great danger to which medical men are exposed in the course of their professional work. In this instance, as the reward of a charitable action, Dr. Moorhead has had to defend himself in the courts for two strenuous days, and has, although the verdict is in his favour, been put, no doubt, to considerable expense. He has the sympathy of all in the annoyance from which he has suffered.

### *The Medical Register Bill.*

The Medical Register Bill (1926) has passed both Houses of the Oireachtas. It carries on the present arrangements for medical registration for six months, or, at the discretion of the Executive Council, for twelve. It is stated that the uncertainty of the situation has had a marked effect upon the number of fresh students entering the medical school in Trinity College, Dublin, this term. The average number entering annually during the ten years before the war was 66. After demobilisation this rose abnormally to an average of 110. When the effect of the after-war conditions passed off, the numbers fell temporarily below the average, as was natural, but in 1924 they rose again to 61, and would probably have been still higher but for the rumours even then current as to the Irish Free State Government's intentions. This year the number has fallen to 35, the lowest since 1892. Further, of the 61 who entered in 1924, six have left to enter other medical schools outside the Free State, and a few students from other years have done the same.

### *County Galway Board of Health.*

Some time ago the County Galway Board of Health, finding itself in financial difficulties, invited all its employees, including its medical officers, to consent to a deduction of 10 per cent. in their salaries. None of the medical officers agreed to the request, and as a matter of fact, only one employee—a dispensary caretaker—agreed to the deduction. The salaries for the last quarter were paid less 10 per cent., and were received as payments "on account." The Board has now been notified by the Department of Local Government and Public Health that the deduction was illegal, and arrangements are being made to obtain an overdraft, so that the Board may meet its liabilities.

## BERLIN.

(FROM OUR OWN CORRESPONDENT.)

### *Conjunctivitis in Public Baths.*

CONJUNCTIVITIS has been frequent in recent years among people bathing in certain municipal swimming baths. The infection is slight in character, and under proper care clears up within a few weeks. Dr. Comberg, of the University Clinic for the Diseases of the Eye, has stated that among 250 swimmers examined by him he discovered ten who were not even aware that they were suffering from an eye disease, and it is evident that ignorance of this kind helps to spread the disease. The epidemic began in 1921, and 416 cases have been recognised; but during the last year energetic measures have been taken in the swimming baths and the disease has entirely disappeared. Dr. Seligmann, head of the laboratory of the City of Berlin, has remarked that sometimes the disease is conveyed by the linen, but more frequently by the water. The virus is unknown, but the municipal authorities have been successful in destroying it, although certain municipal baths are visited sometimes by 1500 persons a day, and overcrowding is very favourable to infection. This success is a result of adding disinfectants to the water, and the continuous influx of chlorine gas has proved particularly efficacious. Chemical and bacteriological examinations of the water were made every three days, and in testing some water which had not been changed for five months it was found that no germs were present. Eradication of conjunctivitis was not the only advantage of the disinfection, for, of course, there is a considerable saving of money if fresh water need not be supplied so frequently, and the price of the individual bath can be considerably reduced.

### *Medical Publications in Germany.*

According to a report of the Medical Publishers' Union there has been a considerable decrease in the number of medical publications of recent years. Apart from periodicals the number of publications in 1908 was 1334; it decreased to 1109 in 1923, and as a result of inflation fell to 827 in 1924. Old books are more frequently reprinted than new ones, because the financial risk of the publishers is less if the books have already gained their reputations. Research work is still flourishing in Germany, but publishers, owing to the general financial position, are unable to risk money on new books unless they can be sure of a demand from the medical public. It is a frequent complaint that German medical books have become extremely expensive, and that their sale has therefore fallen off; but this idea is incorrect. In 1908 the average price of books was M.6·07; in 1925 it was M.9·04. This increase of only 49 per cent. corresponds to the general rise in the price of necessaries. Bigger sales would, of course, permit of cheaper production.

### *Results of Cæsarean Section.*

Before the Berlin Gynæcological Society Dr. Wille reported that in the obstetric department of the Charité Hospital during the last 15 years there have been 357 Cæsarean sections among 28,917 births—that is, 1·2 per cent. of the whole number. The mortality from the operation itself was only 1·4 per cent. 119 of the patients became pregnant again; a second Cæsarean section was necessary in 49 cases; a third in 19 cases; and a fourth in one case. In 13 of the 119 cases in which pregnancy followed the operation there was spontaneous delivery, the duration of labour being on an average 21 hours. In 18 instances other operations became necessary. There were four cases of rupture of the sutured uterus, in three of which the patient was saved by sewing up the wall again. The ruptures were due either to defective suture or to the fact that healing by first intention was not obtained because of the patient's feverish condition.

### *Post-graduate Lectures by Broadcasting.*

Post-graduate lectures by broadcasting are now delivered on the second and fourth Fridays of the month from 8 to 8.45 P.M., as from Feb. 12th. After an introductory address by Prof. K. Adam, honorary secretary to the Institute for Post-graduate Study, the first lecture was delivered by Prof. W. Körte, the present chairman of the German Surgical Association, on Intestinal Obstruction: its Diagnosis and Treatment.

## UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

### *Annual Report of the Surgeon-General.*

THE Secretary of the Treasury has transmitted to Congress the annual report of the Surgeon-General of the U.S. Public Health Service for the fiscal year ending June 30th, 1925. The most notable event recorded in the international field is the signing of the pan-American Sanitary Code by 18 of the American Republics. The pact provides for the collection and distribution of information on the prevalence of communicable diseases and standardises the measures to be taken to prevent their transmission from one country to another. The pan American Sanitary Bureau will no doubt work in close association with the Health Section of the League of Nations. Both human and rodent plague were detected on board incoming vessels by the quarantine service, but no case of plague was imported. For almost the first time in the history of the service no ship was detained on account of yellow fever. Cases were reported from El Salvador, Central America, from three countries in South America, and from the Gold Coast and Nigeria in Africa. The total world incidence, however, is the lowest yet recorded. At Los Angeles, California, there was an outbreak of pneumonic plague with 31 deaths and 8 cases of the bubonic type with 3 deaths. This epidemic and two epidemics of rodent plague in other parts of the country were controlled by the public health service.

The report states that the firework celebrations on July 4th were responsible for 111 killed and 1030 injured, including 148 blinded in one or both eyes.

### *Epidemic of Poliomyelitis apparently Milk borne.*

From the City of Cortland, New York, comes the report of an epidemic of poliomyelitis that has been traced to a dairy boy. The facts are of sufficient importance to be given in some detail. On Dec. 7th a boy of 16 who worked on a dairy farm became sick with fever, headache, pain in the back, and some diarrhœa. In spite of progressive weakness in his hands he continued to work until Dec. 11th. On that day he was definitely paralysed in his entire left arm and right deltoid but succeeded in milking three cows with his right hand. He was seen by a physician on this day who recorded his temperature as 101° F. In addition to milking cows the boy carried milk to the cooler and assisted in filling cans from the cooler, and thus came in contact with practically all the milk produced in the dairy. The City of Cortland has a population of about 15,000 and uses approximately 5700 quarts of milk a day. The dairy above referred to supplies 215 quarts of unpasteurised milk to a dealer in Cortland whose total daily output is 240 quarts. The onset of subsequent cases in Cortland was as follows: Dec. 14th, 1; Dec. 10th, 2; Dec. 18th, 2; Dec. 19th, 1. All of these cases had drunk the suspected milk. It was supplied regularly to the families of four cases; one had drunk it three times daily in a restaurant, and the sixth consumed some of the milk at a gathering that he attended six days before the onset of his illness. Three more cases developed on Dec. 25th; one only had not taken any of the milk, and this one is considered a doubtful case.

### *Housing and Disease.*

Interesting figures bearing on the influence of housing on health have been published by Dr. W. H. Guilfoy, of the New York City Health Department. Infantile mortality varies greatly with conditions. In two crowded negro districts it was between 100 and 120 per 1000 births; in congested east side Italian districts it ranged from 85 to 90; whilst in the Washington Heights area, whose inhabitants are white and reasonably well off (incomes under $2500 yearly), the rate was 48. In this part of the city there are hundreds of new garden apartments, which are well ventilated and well lighted. It is an interesting fact, however, that in two typical Jewish districts, in which overcrowding was as marked as elsewhere, the mortality rate varied from 48 to 52 per cent.—that is, it was actually as satisfactory as that of Washington Heights. The fact that the Jews are eagerly availing themselves of the advantages of public health clinics can hardly explain so unusual a record, and so far as housekeeping is concerned the Jews are no better or worse than their neighbours. Possibly they have acquired a certain degree of immunity after generations of life under such conditions. The average infantile mortality for New York City as a whole was 65 per 1000 in 1925; 72 is considered a fairly good record in the United States, and the rate for New York has halved itself in 20 years. The figures for tuberculosis, needless to say, vary immensely with the conditions of life. In the lower end of New York City proper—that is, of Manhattan Island—the disease is rife. This part includes what is known as the lodging-house district, the Bowery district, and the Armenian and Greek sections, and one of these districts has a death-rate of 11·1 per 1000. The negro quarters are heavily infected, as also are the old tenement dwellings on the west side of the city as far as Fifty-fifth Street, which are chiefly inhabited by Irish, Scotch, English, and Germans. A typical Italian tenement house district has a death-rate from the disease of 1·4 per 1000; a typical negro district with a sprinkling of white people has a rate of 1·8; whilst in one part of the Harlem district the rate reaches 3·1. In the Riverside Drive district, however, the mortality does not reach 0·5 per 1000, and it is even less on Fifth Avenue. These are two of the most fashionable quarters of New York; but the extraordinary thing is that the Jews, in housing conditions as bad as those in which the death-rate is highest, have managed to keep their mortality down to the Riverside Drive figure. The same phenomenon is true of pneumonia. This disease generally takes its heaviest toll where the housing conditions are defective, and especially in those houses in which the heating is unsatisfactory and ventilation poor; a typical Italian district had 2·4 deaths per 1000. Yet the Jews in the crowded east side kept their death-rate from pneumonia far lower than the very rich in Fifth Avenue. Typical Jewish sections had a death-rate from pneumonia of from 0·08 to 0·25 per 1000, compared with 1·3 on Fifth Avenue. It is satisfactory to note that there is no instance of a high death-rate from the more important diseases in districts such as Washington Heights, where all the people live in modern houses, with effective ventilation an sunny rooms.

# Public Health Services.

## PUBLIC HEALTH IN LOCAL LEGISLATION.

A PRECEDENT means a good deal to those who promote legislation in the form of Local Bills. What Parliament has granted to one locality Parliament will probably not withhold from another. Two or three useful public health precedents are to be found in the Local Acts of 1925. Thus the progressive city of Bradford obtained a power of removing infirm and diseased persons to suitable institutions which, if it were not justified on grounds of health, would seem a grave interference with personal liberty. The power is given by Section 56 of the Bradford Corporation Act of last year. If the medical officer is satisfied that a series of carefully prescribed circumstances exists, he may apply to the magistrates for a removal and detention order. The first of these circumstances is that there is a person who is either (*a*) aged or infirm, or physically incapacitated, or living in insanitary premises, or under insanitary conditions; or else (*b*) suffering from grave chronic disease. The second is that in either case such person should be unable to look after himself properly, or to receive proper attention from those with whom he resides. The third condition is that "thorough inquiry and consideration" should show the necessity of his removal from the premises "in the public interest or in the interests of the health of such person or any person with whom he resides." When the medical officer has certified in writing that the case complies with all three of these conditions, he can go to a court of summary jurisdiction for an order, but there are still further safeguards to the liberty of the subject. All the allegations have to be substantiated before the magistrates by oral proof, and the bench can, if it thinks fit, direct a medical examination by a nominated doctor. The bench can then make an order for removal to a suitable hospital, infirmary, Poor-law or other institution, or other suitable place within or near the city, and for detention for three months. This period can be further extended or the order can be rescinded on application in a proper case. The new power would not authorise the detention of a healthy germ-carrier, but it is perhaps on these lines that Parliament may some day solve that problem too. Under another part of the Bradford Act (Section 68) trial will be given for five years to another innovation in our public health laws. The Infectious Disease (Notification) Act of 1889 is applied to venereal disease in the case of infants under 2 years of age, or in the case of adults who, after being informed by the doctor attending them or by the medical officer that further treatment is necessary in order to effect a cure, refuse or neglect to undergo such further treatment. There is a proviso that no one is to have the right or duty of such notification except a medical practitioner. Amongst other novel clauses in the Local Acts of 1925 is one (Section 104 of the Wolverhampton Corporation Act) which enlarges a medical officer's powers of tracing and preventing milk-borne disease. Where, under a previous Local Act, the medical officer or other authorised person takes a milk sample when inspecting cows, the owner of the cow must give immediate notice in writing to the local authority of the district in which the dairy is situated of any sale, disposal, or removal of the cow during the next six weeks.

These important precedents, which will doubtless be followed elsewhere, are mentioned in the recent report of the Select Committee on Local Legislation. For many years past the Committee has been recommending that a new Public Health Act should be passed which would make generally applicable a number of powers for which hitherto each local authority has had to ask individually and at the expense of promoting a Local Bill. This recommendation of the Committee at last received effect in the year now past. The Public Health Act of 1925 was the result; as, however, it did not receive the Royal Assent until the end of the summer session, it was not passed in time to save the labour and expense of a number of local authorities who were asking separately for the powers which the Act gives generally. The effect of the Act will be visible in the Local Acts of the current year. It will no longer be necessary to insert certain old familiar clauses as to contact with the dead bodies of infectious patients, medical examination of inmates of common lodging-houses, isolation, removal of tuberculosis cases to hospital, or the use of ambulances. It will not be necessary to authorise subscriptions to hospitals, provision of accommodation for hospital officers, lectures on health, or measures for the prevention of blindness. It will not be necessary to go again to Parliament for leave to forbid rag and bone dealers to sell food or toys, or to ask further powers to prevent the contamination of food intended for sale. Other clauses in the adoptive parts of last year's Public Health Act will not need to be demanded by Local Act—powers, for instance, for cleansing verminous articles, premises, or persons, or for dealing with offensive trades, or the nuisance which may arise from the occupation of tents, vans, sheds, and similar structures. The pity is that the Public Health Act of 1925 did not go further. It has converted into general law many important provisions previously of only local operation. But anyone who scans the public health provisions which it is still necessary to include specifically in the Bills which local authorities are presenting to Parliament for sanction in 1926 will see how much yet remains to be done before the country concedes as of general right all the powers which every well-administered locality requires and should possess.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED JAN. 30TH, 1926.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox 300 (last week 365); scarlet fever, 1001; diphtheria, 1205; enteric fever, 44; pneumonia, 1302; puerperal fever, 60; cerebro-spinal fever, 11; acute poliomyelitis, 7; acute polio-encephalitis, 1; encephalitis lethargica, 61; dysentery, 4; ophthalmia neonatorum, 95. There were no cases of cholera, plague, or typhus notified during the week.

*Deaths.*—In the aggregate of great towns, including London, there were 2 (1) deaths from enteric fever; none from small-pox; 76 (30) from measles; 8 (4) from scarlet fever; 58 (5) from whooping-cough; 15 (15) from diphtheria; 42 (9) from diarrhœa and enteritis under 2 years of age; and 78 (10) from influenza. The figures in parentheses are those for London itself.

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

THE following appointments have been notified: Surg.-Comdrs. H. M. Braithwaite to the *Vivid*, addl., for R.N. Hospl., Plymouth, and as specialist in diseases of ear, nose, and throat; S. W. Grimwade to the *President*, addl., for 21 days' course at R.A.F. Medical Officers' School of Instruction; G. D. G. Fergusson to the *President*, addl., for three months' post-graduate course; and J. H. Burdett to the *Vivid*, addl., for R.N. Hospl., Plymouth, and as specialist in bacteriology. Surg. Lt.-Comdr. A. Craig to the *President*, addl., for three months' post-graduate course.

## ROYAL ARMY MEDICAL CORPS.

Maj. W. A. Spong to be Deputy Assistant Director-General at the War Office, vice Maj. and Bt. Lt.-Col. O. W. McSheehy (vacated).

Col. H. G. Martin, late R.A.M.C., retires on ret. pay.

Maj. and Bt. Lt.-Col. G. W. G. Hughes to be Lt.-Col., vice Lt.-Col. and Bt. Col. A. Chopping (promoted).

Maj. F. A. Robinson retires, receiving a gratuity, and Maj. W. R. Galwey retires on retd. pay.

Capt. (temp. Maj.) R. P. Cormack retires, receiving a gratuity, and relinquishes the temp. rank of Maj.

Lt. O. A. Owen-Flood, R.A.R. of O., to be temp. Lt.

### ARMY RESERVE OF OFFICERS.

Maj. J. A. G. Burton, late temp. Capt., R.A.M.C., to be Capt., and relinquishes the rank of Maj.

### MILITIA.

Capts. A. Picken and J. W. P. Harkness to be Majs.

### TERRITORIAL ARMY.

Maj. H. E. S. Richards, having attained the age limit, is retd., and retains his rank with permission to wear the prescribed uniform.

Capt. (Bt. Maj.) J. B. Orr from Supernumerary List, for service with the O.T.C., to be Capt. (Bt. Maj.).

Capt. A. F. L. Shields to be Maj.

Capt. A. R. Laurie (late R.A.M.C., S.R.) to be Capt.

R. N. Craig (late R.A.M.C.) to be Lt.

Supernumerary for Service with O.T.C.—Capt. (Bt. Maj.) J. B. Orr resigns command of the Infantry Unit, Aberdeen University Contgt., O.T.C.

## INDIAN MEDICAL SERVICES.

The King has approved the retirement of Lt.-Col. C. M. Mathew.

The services of Major F. A. Barker have been placed temporarily with the Government of Central Provinces, as officiating Inspector-General of Prisons. Capt. B. H. Singh, officiating civil surgeon, Midnapore, to act as Resident Medical Officer, Medical College Hospitals, Calcutta, vice Major N. C. Kapur, granted leave. Lieut.-Col. C. A. Sprawson, professor of medicine, King George's Medical College, Lucknow, to be a member of the United Provinces Medical Examinations, vice Maj. G. T. Burke, resigned.

# Obituary.

## HUGH RIDLEY PRENTICE, M.B., B.S. LOND., M.R.C.P. LOND.

WE have to record with deep regret the death of Dr. H. R. Prentice on Feb. 3rd at the Seamen's Hospital, Greenwich, at the age of 40.

After spending a period of his school days in Weimar, Prentice went to St. Bartholomew's Hospital for his medical education. After qualification, he was appointed senior resident to the Metropolitan Hospital, and later became resident medical officer to the National Hospital, Queen-square, where he worked for four years. Sir Victor Horsley, for whom he had great admiration, was one of his teachers. Later he was admitted to the membership of the Royal College of Physicians, and was appointed physician to the Belgrave Hospital for Children, physician to the West End Hospital for Nervous Diseases, and assistant physician to the Seamen's Hospital, Greenwich, where his demonstrations and lectures on neurology were highly esteemed by the post-graduate students of the London School of Clinical Medicine. During the years of war Dr. Prentice became an hon. lieutenant in the Royal Naval Medical Service, and was seconded to the Seamen's Hospital as chief administrative medical officer. In this way he continued to keep watch and ward over members of the Mercantile Marine during the stress which they underwent. So devotedly had he spent himself in the service of the sailor, that shortly after the war the board of management of the Seamen's Hospital Society appointed him medical superintendent and retained him as a member of the hon. medical staff. His great administrative capacity was also recognised by his being called to act as dean of the London School of Clinical Medicine. Into all his heavy work he threw himself with great energy, but recurring attacks of acute polyarthritis of obscure ætiology compelled him to limit his activities. Notwithstanding the severity of his illness and the progressive undermining of his constitution, he faced the future with indomitable courage, and continued to carry out his duties whenever opportunity offered. "No one who had the good fortune of being associated with him," writes a colleague, "could fail to recognise that he was a man of outstanding merit and worth. He had inherited great gifts. His father, who died when Prentice was 15 years of age, was an authority on music. To his devoted mother he owed much of his intellectual force and literary knowledge. He was an exceptionally well-read man, and was thoroughly en rapport with German and French literature. He had a profound knowledge of music, and was an expert violinist. He had a remarkably well-balanced, clear-thinking mind, and was a master of lucid exposition. His knowledge of medicine, and more particularly of neurology, was deep; and there can be no doubt that his illness robbed us of one who gave every promise of a great future as a clinician." Dr. Prentice was particularly fortunate in his married life. He leaves a widow and three boys, and it is hoped that his sons will carry on their father's high tradition of service.

## WILLIAM EVANS HOYLE, D.Sc. OXF., M.R.C.S. ENG.

Dr. W. E. Hoyle, who died at Porthcawl on Feb. 7th, was born at Manchester 70 years ago. As a student at Owens College, Manchester, he had a distinguished career, and in 1874 obtained a junior studentship at Christ Church, Oxford, where he graduated in the Natural Science School in 1877 with first-class honours. Thence he went to St. Bartholomew's Hospital, London, and three years later qualified M.R.C.S. and L.S.A. Not long afterwards he was appointed demonstrator of anatomy at Owens College, where he remained until nominated by the Government as naturalist under Sir John Murray in Edinburgh on the "Challenger" Expedition Commission. This position he held for six years; his special work was to report on the cephalopoda, and his report on them appeared in 1886. In 1889 he was given the post of keeper of the Manchester Museum and ten years later was chosen as the first director of the National Museum of Wales at Cardiff. This post he occupied for 25 years, until in 1924 ill-health compelled his retirement. To his work at Cardiff Dr. Hoyle brought the experience gained at Manchester and an intimate acquaintance with all aspects of museum routine obtained by visiting the chief museums on the continent and in the United States. He was president of the Zoological Section of the British Association at the Leicester meeting in 1907 and was also at one time president of the Museums Association. Besides his work in marine organisms, he translated Leuckhart's "Parasites of Man," and in addition to his great services as director of the National Museum at Cardiff, he took an active part in all Welsh national movements, acquiring a good knowledge of the Welsh language. Dr. Hoyle was twice married and leaves a widow and two daughters.

## EDWARD MOLYNEUX, M.B., CH.B. MANCH.

GREAT regret has been caused in Southport by the sudden death, on Feb. 11th at his residence at Little Weston, Cheshire, of Dr. E. Molyneux, in his sixty-first year. Not long ago Dr. Molyneux had been compelled by heart trouble to relinquish his practice in Southport, but had continued to give much time and attention to the work of the corporation, on which he served as a councillor and as vice-chairman of the health committee. The son of the late Mr. Joseph Molyneux, of Walton, he received his early education at Liverpool College, and his medical training at the University of Liverpool, graduating there as M.B., Ch.B. in 1890, and becoming M.R.C.S. and L.R.C.P. in the same year. As a student he gained honours in surgery, histology, physiology, and later he acted as demonstrator in physiology in the medical school. After qualification he held a series of resident appointments at the Royal Infirmary, Liverpool, which gave him wide experience, and this was later increased by his work as visiting physician to the Liverpool Fever Hospital and medical officer under the education committee. In 1892 he took up private practice in Cressington and remained there for nearly 16 years. Then he moved to Southport, where for 18 years more he was in busy practice. He found time, however, to take an active part in municipal affairs and also to keep up his keen interest in Association football; not infrequently it fell to his lot to render aid to injured players. Two of his sons served throughout the war. Both in professional and other circles, the loss of Dr. Molyneux will be greatly felt.

# Correspondence.

"Audi alteram partem."

## THE MEDICAL PROFESSION AND OSTEOPATHY.

*To the Editor of* The Lancet.

Sir,—It is clear that a determined attack is about to be launched by various sects of "unqualified" individuals, including osteopaths, chiropractors, bone-setters, and the like, to ensure State recognition. This attack is well organised and is engineered by many able men who have a strong following in Parliament and who have behind them the powerful and almost unanimous voice of the lay press. As a profession we have incurred the unpopularity of the press because we dislike medical "stunts" and vulgar publicity. The preliminary bombardment has already begun. Let us not confuse osteopathy with manipulative surgery. The latter has "won its spurs," is almost universally recognised, and is practised by many medical men, although formerly left largely to bone-setters, some of whom, such as Sir Herbert Barker, possessed very great ability. These bone-setters never claimed that they could cure every disease under the sun. They kept to their own field wherein, in spite of occasional disasters, they often did good and useful work.

Now the osteopaths make much more extravagant claims, and many of them claim that nearly all disease can be traced to minor displacements of the vertebræ. One can at any rate respect a good bone-setter because he is working upon rational lines, but what are we to think of an individual who claims to cure typhoid fever or tuberculosis, diphtheria or cancer, by manipulating the spine? Such theories are not only untenable, but constitute a grave public danger.

What is our duty as a profession towards this menace? In the first place, we obviously cannot afford to ignore the matter as beneath our notice, but must launch a powerful counter-attack. We must endeavour to educate the public and tell them the truth about osteopathy and manipulative work generally. We shall only weaken our position if we attempt to discredit the undoubted successes that osteopaths and bone-setters sometimes achieve when other methods have failed. Nothing has so harmed our reputation in the past as this refusal to face facts. We must meet these attacks with reasoned argument and a willingness to give credit where credit is due. How are our arguments to be brought to public notice? Much can be done in Parliament provided that our spokesmen marshal their arguments carefully and avoid giving the impression that they are swayed by mere prejudice.

Secondly, we must organise our own press campaign. Statements in the press by individuals are better avoided, but if some such body as the British Medical Association or the British Orthopædic Association would form a committee and draw up an authoritative and dispassionate pronouncement for the press upon the merits and dangers of osteopathy, only good could result. There is one particularly cruel and callous falsehood that the press never tire of asserting—namely, that bone-setters and other unqualified persons possess some special knowledge and skill which is not possessed by legitimate qualified specialists in this field. This calumny must be definitely and finally refuted. Mr. Elmslie most appropriately in a recent discussion pointed out the unfair advantage that bone-setters possess by the publicity that the press allows to their successful results and by the veil that it discreetly draws over their failures. Not long ago perhaps the most famous living bone-setter paid me the great compliment of permitting me to perform a manipulative operation upon his back. I could not help thinking that if this operation had been performed by another bone-setter, the press would have returned with great gusto to the congenial task of decrying professional neglect of bone-setting and of exalting unqualified practice.

Before the osteopaths can hope for State recognition they must bring forward evidence for their theories that will stand thorough scientific investigation. The evidence so far adduced is from a scientific view-point almost worthless. If there be aught of value in osteopathy, it is obvious that it can be most safely practised by persons with a thorough training in and qualification to practise medicine and surgery. It is earnestly to be hoped for the public good that, in this country at any rate, any diplomas or degrees that may be conferred by Colleges of Osteopathy will never be allowed to take the place of those qualifications permitting medical practice sanctioned by the General Council of Medical Education.

I am, Sir, yours faithfully,

A. G. Timbrell Fisher, *M.C.*, F.R.C.S. Eng.

Montagu-square, W., Feb. 15th, 1926.

## THE TREATMENT OF CANCER WITH LEAD.

*To the Editor of* The Lancet.

Sir,—During my recent trip to Europe I had the opportunity of seeing in great detail the work of the Liverpool Cancer Research Committee, especially that aspect of the researches conducted by Prof. W. Blair Bell. Through his kindness and that of the Vice-Chancellor of the University, Prof. J. G. Adami, I not only learned the general principles of the treatment of patients but also became acquainted with the organisation and methods of the interesting research group which has been formed in Liverpool for the study of various aspects of the cancer problem. Some of the facts have already appeared in print but others are not so well known, and I would like to set out the points which seem to me to mark a very important advance in the method of attacking a special problem and one which well might be employed more frequently in similar investigations concerning cancer and other diseases.

In the first place, the funds for the various studies, both chemical and pathological, were, and still are, provided by a group of generous citizens of Liverpool. After the guarantee of sufficient income was obtained, advisory groups were formed, made up from the staff of the various scientific departments of the University and practitioners of eminence both in medicine and surgery. The problem set was to carry on the work already begun by Prof. Blair Bell on the treatment of cancer by intravenous injections of colloidal lead and to see how it could be made most useful. As the preparations first made were weak and unstable, one of the most important problems to be solved was to devise a method by which the concentration and stability of the therapeutic agent could be increased. This being evidently a physico-chemical question, a group under the direction of Prof. W. C. McC. Lewis were put at work and have conducted a large series of investigations resulting in a very considerable improvement along the lines indicated, though as yet the product is so unstable and difficult to prepare as not to warrant the publication of the procedure, for the current practice is not regarded as final and is quite beyond the manipulative skill of the medical practitioner. As yet the lead suspension keeps only for a few days. It is hoped, however, that ultimately a more permanent colloid may be obtained which can then be made available for use in skilled hands. While it is regrettable that all sufferers from hopelessly advanced cancer cannot have the immediate benefits of the treatment, it is obvious that a premature distribution and the inevitable disparagement of so dangerous an agent which would result from the effects of its misuse could only end in a lamentable loss of life among those whom the treatment is designed to help. For in addition to the dangers of an imperfect or inaccurately assayed product it has been found that bad results can scarcely be avoided unless a very elaborate and painstaking study of the patient's general condition is made, so that only those with a considerable clinical experience in observing patients under lead treatment are able to obtain satisfactory results. When, however, the use of colloidal lead is surrounded with all these precautions the results are highly satisfactory, as the recent paper in THE LANCET by Prof. Blair Bell amply demonstrated.

But another phase of the situation is of very great interest. Not only has the mobilisation of the intellectual forces of the Department of Physical Chemistry contributed greatly to the success of the enterprise, but other groups have found fertile problems for study in various aspects of the work. The result has been not only the production of matter of direct value for the chief problem in hand, but numerous intellectual by-products, so to speak, have been prepared during the course of the main investigation, and these may ultimately lead to improvement in our, at present, very unsatisfactory treatment of lead poisoning and probably aid the solution of other clinical problems. Thus, not only has the situation resulted in what I regard as a remarkable practical achievement in the main problem attacked, which is the treatment of cancer, but the pure science departments of the University have been benefited by an intellectual fertilisation due directly to active interest in fresh and very human problems. We all need to be reminded occasionally that some of the abstruse studies made by the laboratory recluse and buried in technical journals behind a barricade of repellent mathematical formulæ may upon occasion contribute astoundingly to human health and happiness. Such an occurrence as this is a healthy reminder of the importance of the university to the community in which it exists, entirely apart from the benefit derived from direct teaching. From all other aspects I am convinced that both the Cancer Committee and the University of Liverpool should be well satisfied with the results already achieved as showing not only how successful well-coördinated research can be, but how fertile in practical achievement. The future course of the work has been well planned. It is hoped that with the treatment on a working basis the guarantors can gradually be relieved of their financial burden and the committee will be able to derive sufficient funds from the fees of patients taking the treatment to carry on the work. It has been the practice heretofore to turn all fees into the research fund and pay from that fund modest salaries to those who were giving largely or wholly of their time. It is hoped that further development may take place in this direction and eventually result in the accumulation of considerable endowment for permanent support of future investigation.

I am, Sir, yours faithfully,
FRANCIS CARTER WOOD,
Director of the Institute of Cancer Research,
Jan. 10th, 1926 Columbia University, New York.

## CHARING CROSS HOSPITAL INSTITUTE OF PATHOLOGY

*To the Editor of* THE LANCET.

SIR,—A short time ago I saw in a daily paper an article giving an account of the Charing Cross Hospital Pathological Scheme. From the examples given of the proposed fees the scheme is obviously a charitable one, but no mention was made of any desire to prevent abuse of the charity. I should like to know what means will be adopted to prevent this abuse. The value of the opinion of a pathologist who would consent to such fees, when working for himself, would not amount to much, but when backed by the name of a London hospital the public may be deceived into thinking that they are paying the market value of the best advice. They will notice that, whereas the value of the advice of a physician or surgeon is measured in guineas, that of the advice of the pathologist is measured in shillings. It is stated that the director is to sign all reports. I should like to ask him if he intends to carry out personally all the investigations on which the reports are based. If not he will be in the position of a practitioner who signs medical certificates without examining the patient and may also be liable to be accused of covering unqualified practice.

The whole scheme appears to me to be a disgrace to the hospital and to the University of London for allowing their laboratories to be used for the purpose of undercutting the fees for pathological work. It is quite time that the attention of the General Medical Council was drawn to this and similar schemes so as to determine the position of pathologists who consent to work such schemes. The conduct of such pathologists would appear to be as "infamous" as that of many practitioners who are brought before the Council. Unfortunately, there are many medical men in high positions who regard pathologists as an inferior order of being and who support these schemes for supplying cheap pathological opinions. They adopt a code of ethics when dealing with pathologists different to that which they adopt when dealing with their clinical colleagues. The whole scheme is another example of the contempt with which pathology and pathologists are regarded by our universities and medical schools and by the profession generally.

Dr Murray has suggested another scheme which the Charing Cross Hospital might usefully adopt, and I venture to suggest two more. Why does not the hospital bring forward a scheme for supplying medical and surgical advice through its honorary staff on terms and for fees similar to those suggested for pathological advice? Why, again, does it not undertake to dispense medicines at prices which would undercut those charges by pharmaceutical chemists?

I am, Sir, yours faithfully,
CHARLES POWELL WHITE.
Manchester, Feb 15th, 1926

*To the Editor of* THE LANCET.

SIR,—Dr Murray's suggestion that the Hospital for Epilepsy and Paralysis might speculate with a laundering business would not appeal to the hospital committee nor to me, as I have no experience in the management of such a business, except the weekly wave of anger and of sorrow I suffer The hospital, however, can claim to know something of pathological investigations, it is not competing with ordinary business, and for these reasons I disagree with Dr. Murray —I am, Sir, yours faithfully,

H. W. BURLEIGH,
Feb 12th, 1926 Secretary and General Superintendent.

## THYROID GLAND AND CALCIUM THERAPY.

*To the Editor of* THE LANCET.

SIR,—This interesting correspondence evokes old memories of how so many chilblains in pre-war days were certainly cured by calcium lactate. Small doses of thyroid were added only if its use was otherwise indicated. Dr Drake has probably supplied the correct explanation of the present discredit thrown upon this treatment when he says that only the failures now reach the specialist. I recall the days when my late husband, Dr. T. D. Savill, wrote on the efficacy of calcium chloride, in large doses, for many skin diseases; it should be remembered that where active toxæmia was in operation he found its action was not remarkable

As regards the other type of case described so clearly by Dr. Barber, girls and women with firm, swollen, blue ankles, I have seen many in hospital and in private practice and have been surprised by the remarkable fact that many of these cases do not have chilblains. Some feel quite well and only object to the thick ankles because of the present-day short skirts. The general obesity corresponded in all my cases to the pituitary deficiency type; some presented also some thyroid deficiency, but in lesser degree In most cases a loaded cæcum or sigmoid flexure was easily detected; in two there was a history of the condition having followed pneumonia, in two it followed rheumatic fever. Treatment is necessarily long, so the majority disappear after slight improvement occurs. I should like to report one who persevered until cured.

Miss C, aged 32, had double pneumonia six years previously, and since then had become stout, with scanty menses and swollen blue legs and ankles. She had large blue breasts, blue extensor upper arms, thick blue ankles, pads on lower chest, abdomen, and thighs; and was easily fatigued. The cæcum was palpable. A catheter specimen revealed *Staphylococcus aureus*. An autogenous vaccine was given, also pituitary extract, and a mild rhythmic sinusoidal current daily to both legs. Improvement at once was noticed. The constipation was treated, a vitamin-containing diet ordered; the pituitary extract by mouth and electricity with a faradic battery were continued at her home for nine months. I saw her frequently during the first three months; during the following six months she carried on alone. During these six months she also took 1/10 gr. parathyroid daily. When I saw her after nine months' treatment she was another woman—the periods were normal, she felt well, the ankles were slim, there were no pads or blueness on limbs or body.

All my other cases with swollen blue ankles began to improve with electricity, pituitary extract, and removal of toxæmia, but were not wise enough to persevere. I do not know if the parathyroid played any part in the cure of the above case, but of its value in varicose ulcers I am convinced. Calcium lactate and ultra-violet light is given as a routine to all my hospital cases; parathyroid is only ordered in obstinate cases. Many of the patients have remarked spontaneously that they dated their first big step forward from the week they began parathyroid.—I am, Sir, yours faithfully,

Devonshire-place, W., Feb. 15th, 1926. Agnes Savill.

*To the Editor of* The Lancet.

Sir,—I take up the cudgels on behalf of the treatment of chilblains by calcium lactate. At one time I had a large practice among school and college girls, a class largely addicted to chilblains. By the use of this drug prophylactically, those who were prone to bad chilblains remained free, and those who took it for the first time, when attacked by chilblains, found that these cleared up quickly. It is my impression that about 90 per cent. of chilblains can be cured by this method. But the calcium lactate must be taken under certain conditions.

1. On an empty stomach, preferably before breakfast immediately on rising. For prophylaxis, my prescription was three 5 gr. tablets daily on rising, before breakfast, for a week; for treatment, nine daily, three taken one hour before meals.
2. Not in excess. It is said that calcium in excess defeats its own object and I have found this to be so, though I do not understand the raison d'être. For this reason I never give more than 25 5 gr. tablets (one bottle) in six weeks.

In the class of case mentioned by Dr. Barber I must confess to failure. These girls have purple, cold, swollen hands even in summer. If pressure by the thumb be made on the dorsum of the hand to empty the capillary circulation, the return is very much slower than normal. There must be some congenital constitutional failure affecting the peripheral circulation. One finds all stages up to definite Raynaud's disease. I have tried intestinal disinfectants without success, but not iodine as Dr. Barber suggests, and have been reduced to local treatment with massage and electricity to tide them through the winter avoiding bad chilblains.

Whether or no there be calcium deficiency in chilblain patients, surely it is possible that calcium lactate may still act as the final factor in increasing the osmotic pressure of the blood and thus preventing the local effusion in response to a local chill. Also, in girls, after puberty, the calcium content of the blood must vary considerably during the month, having regard to the monthly excretion of calcium. Many patients find that chilblains are more apt to occur round about the menstrual period.

As regards parathyroid in this complaint, I have had very little experience, as I reserve the treatment for cases which do not clear up with calcium lactate only. I am, Sir, yours faithfully,

Walmer, Feb. 8th, 1926. D. C. Nasmyth.

## BROMO- AND IODO-PHENOLPHTHALEINS IN CHOLECYSTOGRAPHY.

*To the Editor of* The Lancet.

Sir,—As the use of these compounds is so new, I venture to draw attention to the results recently obtained in America with an average dose of 2·5 g. in 2 per cent. dilution in normal saline (*Jour. Amer. Med. Assoc.*, Jan. 23rd, 1926, p. 239). Doses of this strength are less likely to produce violent reactions than the quantities hitherto employed, and will probably give adequate shadows.

I am, Sir, yours faithfully,
W. H. Martindale.

New Cavendish-street, W., Feb. 12th, 1926.

## THE TWORT-D'HERELLE PHENOMENON.

*To the Editor of* The Lancet.

Sir,—In your issue of Jan. 23rd Dr. Gratia and Dr. Rhodes draw attention to their work on the breaking down of dead bacteria in the presence of living ones. In my last paper in The Lancet, in which I dealt with this question, I made no mention of their earlier work which was carried out along the same lines. At the time I was unaware of their investigations, and I much regret they were overlooked. The experimental results with saline emulsions obtained by Dr. Gratia and Dr. Rhodes and their conclusions differ from mine. In reply to their criticisms I may say that in carrying out my experiments I did not overlook the question of autolysis, and my view is that autolysis or "isophagy" is not sufficient to explain my results. These convince me that if the experiment is suitably arranged, the lysis of dead bacteria, in the presence of living ones of the same variety, only takes place quickly and to any appreciable extent when the transmissible lysin is also present. However, there is a *possibility* that the "transmissible lysin" never produces lysis directly, but acts by killing the bacteria in such a manner that the autolysins which they contain are enabled to produce lysis, or to assist in this process. There are several simple chemical methods of setting free the autloysins while the bacteria are being killed, and these lysins will partially clear a bacterial emulsion that has been killed by heat without the presence of the transmissible lysin. The manner, however, in which the transmissible lysin acts is a wider problem with which I will endeavour to deal more fully in a paper which I hope to publish shortly.

I am, Sir, yours faithfully,
F. W. Twort.

The Brown Institution, University of London,
Feb. 12th, 1926.

## TRANSFUSION OF WHOLE BLOOD.

*To the Editor of* The Lancet.

Sir,—The transfusion of whole blood is in many instances one of the most effective measures in the armamentarium of the medical practitioner. It would probably be much more widely practised in this country were it not for a widespread idea that it is both a difficult and dangerous operation. The difficulty of the operation by the citrate method is little greater, provided a suitable donor, than that of the infusion of saline, but both in this country and America warning voices, the latest of which to date is that of Dr. Robert Platt in your issue of Jan. 23rd, are continually being raised against the dangers of this method.

Both at St. Thomas's Hospital and the Wolverhampton and Staffordshire General Hospital I have, in the course of the last five years, been concerned as the selector of a suitable donor in a considerable number of blood transfusions. In every case citrate was used and in no case save one did anything other than benefit result; the one exception was the case of a debilitated patient who suffered from some cardiac distress during the operation as the result of the too rapid introduction of blood into an enfeebled circulatory system; even in this case nothing in the nature of what is usually known as a "reaction" occurred. As the result of my observations I have been forced to the conclusion that in all cases where "reactions" have occurred after the transfusion of blood by the citrate method they must have been due to faulty technique, which usually means the introduction of an incompatible blood. It is, perhaps, not sufficiently realised that the group agglutinins may and do occur in very different strengths in sera of the same group from different individuals[1]; the same applies to the agglutinable factors of the corpuscles. In THE LANCET of March 25th, 1922, I endeavoured to lay down the precautions which should be taken in performing a grouping test. Briefly, these consist in the use of a grouping serum of high titre, the dilution of the blood to be agglutinated and the microscopical observation of the test over a period of at least ten minutes. In the absence of these precautions it is easy to miss minor degrees of agglutination.

In this connexion it may be pointed out that one or other of the agglutinable factors may be present in certain corpuscles to such a small extent as entirely to escape observation except by absorption methods. This fact became apparent to me in the course of a series of such absorption tests performed by myself some years ago; this means that certain bloods apparently of Groups II. or III. are really of Group I. (Moss). This fact seems to be the explanation of certain anomalies described by Prof. E. E. Glynn at the Liverpool meeting of the Pathological Association in January, 1925, and also of the extensive observations of Guthrie and Huck, though these latter workers attributed their results to the presence of a further agglutinable factor.

Could it only be generally realised what a safe and simple procedure the transfusion of whole blood by the citrate method really is, it would probably find a much more widespread application in this country than it now has, and many cases must be occurring daily in which it is the only measure offering any real hope of the salvation of life.

I am, Sir, yours faithfully,
Wolverhampton, Feb. 14th, 1926. S. C. DYKE.

## A PROJECTED NURSING HOME.

*To the Editor of* THE LANCET.

SIR,—With respect to the leading article on "The Paying Patient" in your last issue, for some weeks I have been trying, at the suggestion of and in consultation with a number of West-end specialists, to establish a nursing home which will be free from many of the defects of existing homes, and will have advantages possessed by few, if any. A house is available offering the following:—

1. High open situation, with free access of air and light; little traffic, no 'buses or trams, and freedom from noise, dust, and smells; and within 15 minutes by car from the West End. Five minutes from a station.

2. Good bedrooms, with magnificent views over open country; a very fine lounge, dining-room, conservatories, and large garden available for convalescents and those not confined to their rooms. Accommodation for about 26 patients would be available to begin with, with ample room for extension.

3. In addition to an up-to-date operating theatre, there will be an X ray plant, apparatus for electrical treatment of all kinds, and a pathological laboratory.

The home would be under the management of a resident medical superintendent who would supervise all details in the interest of the patients, and not subordinate their comfort, &c., to rules and restrictions to secure ease of administration. Charges would not be exorbitant and below the average of existing West End homes.

So far, however, it has been found impossible to secure the necessary capital, amounting to £20,000 to £25,000; it is, of course, undesirable that any of it should be provided by those who would have their patients in the home. All details have been worked out and estimates prepared. A dividend at the rate of 10 to 15 per cent. could be earned, but if the money could be provided by someone who would be content with (say) 6 per cent., a proportionate reduction in fees could be made for the benefit of the patients who needed this. The scheme has been submitted to some very prominent members of the profession and has their approval.

In sending you this letter I fully realise you may find yourself unable to publish all or any of it; but possibly you may know of somebody who would like to investigate it with a view to helping the scheme forward. I am, Sir, yours faithfully,
E. C. PLUMMER.
St. Faith's Nursing Home, Mount Park-road, Ealing, W.
Feb 15th, 1926.

## METOL POISONING.

*To the Editor of* THE LANCET.

SIR,—In August, 1925, a young lady chemist, after a week's extra use of metol, noticed a rash between the fingers "with small, mattery heads," later spreading to the backs and palms of hands, face, and neck, some swelling and irritation, especially of fingers and eyelids. The rash became dry and scaly with cracks on fingers and chin. Various emollient ointments and lotions were tried, but it has recurred at intervals, especially on using metol or even dispensing it, although rubber gloves have been used with some success. I am told that the irritating cause is an impurity in the metol and is chemically akin to the dye used in cheap furs and producing a dermatitis. Perhaps readers of THE LANCET would indicate a line of treatment.—I am, Sir, yours faithfully,
Cowes, I.W., Feb. 12th, 1926. L. P. GIBSON.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee 57 cases were considered and £577 voted to 14 applicants. The following are notes on some of the cases relieved:—

Widow, aged 50, of M.R.C.S. (King's Coll.) who practised in Middlesex and died last year. When the late husband's estate is settled up income will be about £200 a year for herself and three children, 2 boys, 13 and 8 years, and girl of 11. Unable to meet the educational expenses of the children. The Committee made a small grant to render the case eligible for our Guild's assistance with education.

Widow, aged 37, of M.B. Manch. 1908 who practised in Wales and died last April. Left with three children aged 10, 5, and 2 without any income and too ill at present to do anything towards maintenance of self or children. Since husband's death they have been helped by relatives, but the applicant is asking for educational assistance. The Committee made a small grant so that our Guild can deal with the case.

Daughter, aged 70, of M.D. St. And. who practised in Lancashire and New Zealand, and died in 1872. She returned recently from Australia owing to her brother's death. Came home to stay with a married sister in the Midlands, but owing to ill health she removed further south and is now living in one room. Only income £32 per annum. Very favourable report received about this case. Voted £18 in 12 monthly instalments.

L.A.H. Dublin 1907, aged 47, married, one son aged 11. Six years war service. Sold practice before joining up. Has repeated attacks of malaria. Now unable to find employment. Medical work for the last 12 months brought in £105. Officers' Association granted £15. Has pawned and sold various articles. Voted £7.

Widow, aged 65, of M.R.C.S. Eng. (King's Coll.) who practised in London and died in 1923. Only income is the rent received from a house which brings in about £12 net per annum. Has £30 left from sale of furniture. Lives in one room at 9s. a week. £3 voted by the Committee and application has been made for a grant from the Masonic Benevolent Fund.

Daughter aged 70, of M.R.C.S. Eng. (St. Bart.'s) who practised in Worcestershire and died in 1872. Used to make a living by teaching small children, but had to give up this to look after her mother who died in 1920. Tries to let a portion of a house but is at present without a tenant. She received £35 from letting and a brother allowed her £27. She has had the O.A.P. since August last year. Rent and rates £38. Voted £9 in 12 monthly instalments.

Widow, aged 37, of L.R.C.P. Edin. 1917 who practised in Wales and died last March. In great trouble as the house and shop where she carries on a small business has been sold, and she will have to vacate the premises in a few months' time. Has one boy aged 12 for whom she asks educational assistance. The Committee handed it over to our Guild to deal with, together with a small grant.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W. 1.

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[1] On Isohæmagglutination, S. C. Dyke, Brit. Jour. Exp Path., June, 1922.

# CRIMINAL OFFENCES AND PROSTATIC ENLARGEMENT.

## A MEDICO-LEGAL DISCUSSION.

AT a meeting of the Medico-Legal Society, held at the rooms of the Medical Society of London on Feb. 16th, Dr. Nathan Raw, the President, occupying the chair, Dr. G. Halliday Sutherland read a paper on Enlargement of the Prostate in Relation to Criminal Offences. He began by giving a detailed description of the anatomy of the gland and the surrounding structures by means of the epidiascope, and showed some illustrations of histological specimens from the prostate of other animals by way of comparison. He indicated the particular direction in which only enlargement of the organ could take place in man—namely, between the neck of the bladder in front and the seminal vesicles behind, the enlargement pushing the bladder in front of it, and giving rise to micturition troubles. He also described the urethroscopic appearances in cases of chronic masturbation. Two-thirds of the prostate consisted of muscle, one-third of gland substance, and its average normal weight was 4½ drachms; it was supplied with motor, sensory, and trophic nerves. Sir Henry Thompson had shown, he said, that after 60 years of age the gland remained of the normal weight in 60 per cent., in 11·6 per cent. there was atrophy of it after that age, and it was enlarged after 60 in the remainder. Nearly half the men in whom the gland was enlarged after 60 had made no complaint in reference to it. The most frequent cause of the enlargement was the development of an adenoma; it was not a true hypertrophy; there was also dilatation present in most. Dr. Sutherland had satisfied himself that the dilatation was secondary to the constriction of the little ducts, the latter due to inflammatory reaction or as part of a general arterio-sclerotic change in the individual.

The earliest symptom noted by the patient was a gradually increasing frequency of micturition, calling first once in the night, later twice. In some cases there was a sudden retention of urine—namely, when the enlarged portion fell over the opening of the urethra, or by an adenomatous growth blocking that channel. In others there was a feeling of weight and discomfort in the perineum, with constipation. This last he attributed to the sensitiveness of the whole area, which led to a deferment as long as possible of the act of defæcation. There was also a dull aching in the back or a sacral pain, which sometimes radiated down the inside of the thighs. Particularly was pain felt on micturition and defæcation. Thirst and a dry skin were other concomitants. In later stages cystitis might develop, pass to the kidneys, lead to pyelonephritis, uræmia, and so to death.

Not much, said Dr. Sutherland, was to be found in literature dealing with the medico-legal aspects of prostatic enlargement, but it was generally agreed that a likely association of this enlargement was the commission of lewd acts, passing on to criminal ones, in persons previously above reproach. He quoted some examples, the persons concerned apparently deriving satisfaction from merely touching the parts or members of the opposite sex. Disease in the sexual area always had a profound effect on the mind, quite out of proportion to that caused by disease in any other part. In cases of the kind under discussion the stimulus might be so urgent that the reader of the paper thought they might well come under the second category of the McNaghten judgment. In most of the criminal cases he thought the wisest course was to get an undertaking from relatives to take care of the guilty person, thus performing a similar function to that carried out by the Procurator-Fiscal in Scotland.

Sir Bernard Spilsbury, who followed, said the principal type of enlarged prostate he had met with in his post-mortem experience was that in which all the elements of the gland were increased in bulk, not only the gland itself, but also the muscle and fibrous tissue which formed the support of the gland. In cases of enlarged prostate removed by operation, adenoma was rare comparatively. In considering the legal side of certain cases of sexual perversion, there was a liability to unduly stress the functions of this gland. In some cases removal of the gland had not cured the abnormal impulses of the individual. Sexual perversion he attributed rather to pressure effects on the sexual organs generally; sometimes there were definite obstructive effects. Moreover, after operation scar tissue formed, and the contraction of this might again be a source of irritation.

Dr. Graham Grant, speaking as a police surgeon, said he had been present at the trial of many persons brought up before the courts accused of committing indecent exposure, and declared that a large number of these offences occurred in public urinals. A common defence when men were stated to have remained there unduly long was that they were engaged in adjusting their truss, and he asked whether the pressure of a truss would cause sufficient sexual irritation to lead to offences of the kind under discussion.

Dr. M. I. Finucane spoke of the detailing of plain-clothes officers to watch out for cases referred to by the last speaker, and incidentally mentioned that in the West End particularly offences in lavatories were quite common. He elaborated the legal rights possessed by persons so charged to see a doctor, their own if they so desired.

Lord Riddell said he considered it a dangerous doctrine to give evidence of an enlarged prostate as a defence. Life consisted of a series of coats of varnish, and 60 seemed to be about the age when those varnish coats reached their zenith. They were either good or bad coats. Men who had hitherto led a good and wholesome life became at that age nice respectable old gentlemen; but those whose lives up to that stage could not be so described now suffered for their previous conduct; their minds became a kind of cesspool, and they gave evidence of that in their repulsive acts. Nothing had been mentioned in the discussion as to women. There was no prostate gland in women, yet self-exposure by women of various ages was not uncommon. Probably the rapid sequel in women showing this abnormality was to take them to an asylum. In all these matters it was necessary to proceed on broad lines, and if the various suggestions made as to special treatment of these perverts were carried out, society would soon get into a disorganised state. His own feeling was that men who committed the kind of offences under discussion should be severely punished. Usually they were exceedingly cunning and were quite aware of the crime they were committing, but were difficult to catch. He hoped that nothing which had been said in the discussion or in the paper would lead to these people being examined by police surgeons and in that way escaping their just treatment.

Further points made in the ensuing discussion were, that most of the elderly men accused of these acts showed some signs of senile dementia, and some of them when examined did not show an enlarged prostate. These acts, which were not committed by all possessors of an enlarged prostate, might be one of the earliest signs of a state which later might become certifiable. Another point made was that in these old men the acts in question represented the final flickerings of a sex passion which, nevertheless, was not equal to the performance of the normal sexual act. The urge was still there periodically, but the response was only partial, and the manifestations of it were accordingly bizarre. An aspect which was only once touched on was that of finding a consenting party of the opposite sex, and one speaker alluded to a case in which a middle-aged woman stated on her card that she showed special patience with old men.

Dr. Sutherland dealt in his reply with a number of the points raised in the discussion.

# Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At an ordinary meeting of the Council of the College on Feb. 11th, Sir John Bland-Sutton, the President, in the chair, Sir D'Arcy Power was re-elected a representative of the College on the Council of Queen Victoria Jubilee Institute for Nurses.—The President reported that Prof. Sir Arthur Keith's remaining three Hunterian lectures, which had been postponed, would be given on Monday, Feb. 22nd, on the Taungs Anthropoid; its Zoological and Geological Position; Wednesday, Feb. 24th, on Fossil Anthropoids of Europe and of Asia; and on Friday, Feb. 26th, on the Kivu Gorilla and its Bearing on the Problems of Human Evolution.—Letters were read from Sir Charles Ballance and Mr. James Sherren resigning their seats on the Council, such resignations to take effect at the end of the College year in June.—The President reported that a meeting of the Fellows would be held at the College on Thursday, July 1st next, at 2.30 P.M., for the election of four Fellows into the Council in the vacancies occasioned by the retirement in rotation of Mr. Walter G. Spencer and Mr. Ernest W. Hey Groves, and by the resignation of Sir Charles Ballance and Mr. James Sherren; that notice of the meeting would be given to the Fellows by advertisement and by circular on March 5th; that March 15th would be the last day for the nomination of candidates; and that a voting-paper would be sent on March 30th to every Fellow of the College (except women Fellows) whose address is registered at the College.—Diplomas of Fellow were conferred upon Dr. Harold Burt-White (St. Bart.'s) and Dr. Alan Cameron Maconie (St. Bart.'s), who had previously passed the requisite examinations and have now attained the age of 25 years.—Diplomas of Member were conferred upon 179 candidates (144 men and 35 women) who have passed the requisite examinations and have complied with the by-laws. The following are the names and the medical schools of the successful candidates:—

P. W. A. Agnew, St. George's; N. A. Arnold, Guy's; A. Ashworth, Liverpool; A. L. Banks, Middlesex; C. M. Barker, Cambridge and Univ. Coll.; L. H. Belcher, Guy's; R. J. I. Bell and S. B. Benton, St. Bart.'s; S. Bernstein and M. Bomze, Univ. Coll.; Elsie Boyton, King's Coll.; R. Broomhead, Leeds; A. Byrne-Quinn, St. Thomas's; Irene F. Callender, St. Mary's; A. L. Canby, St. Thomas's, De L. Carey, St. Mary's; S. Chazen, Guy's; H. Childs, Cambridge and St. Thomas's; J. H. Chitty, Oxford and Guy's, J. H. Clapp, London; A. Clark, St. Bart.'s; G. C. W. Clarke, Sheffield; H. N. Collier, Guy's; Violet H. Comber, Univ Coll.; R. V. Cooke, Bristol; W. F. Cooper, Cambridge and St. Bart.'s; A. R. Cox, Guy's; S. T. Davies, Univ Coll.; T. W. Davies, Cardiff; T. E. Davies, St. Thomas's; Hilda C. Dean, Charing Cross; A. E. de Fonseka, Ceylon and King's Coll.; May W. de Livera, Ceylon and Royal Free; G. C. Dewes, Cambridge and St George's; H. V. Dicks, Cambridge and St. Bart's; Mary G. H. Dickson, King's Coll.; Margaret H. Duncan, London; G. H. Dymond, St. Bart.'s; Elaine O. H. Earengey, Univ. Coll.; R. W. B. Ellis, Cambridge and St. Thomas's; D. C. M. Ettles and J. Evans, Guy's; B Fink, Manchester; C. W. Flemming, Oxford and Univ. Coll.; T. D W. Fryer, Cambridge and St. Thomas's; S. W. Gabbe, Cape and St. Thomas's; S. C. Gawne, Liverpool; P. Gibbin, Cardiff; Dorothy Godden, St. Mary's; P. J. Gonsalves, Guy's; A. P. Gorham, Bristol; Agnes H. Gray, Royal Free; D. P. Gray, Middlesex; Margaret K. Green, St. Mary's; W. H. Green, Middlesex; C. R. M. Greenfield, St. Bart's; L. A. N. Greenway, Calcutta and King's Coll.; B J. Griffiths, Cardiff; A A M. Groot, Leyden and Westminster; A. Gross and F P. Guilfoyle, St. Bart.'s; K. H. Hadley, Melbourne and Middlesex; R. N. Hall, Cambridge and St. George's, C. W. Harrison, Los Angeles and St. Bart.'s; L. Hartston, London; H. G. Harvey, St. Thomas's; J. P. Helliwell, St. Mary's, T. R. Hill, Guy's; R. L. Holt, Manchester; H B Hosford, St. Bart.'s; Mary H. M. Huggett, King's Coll; N C. Hypher, London; D. E. Iago-Jones, Cardiff and Middlesex, R. J. Isaac, St. Mary's, G. L. C. Jones, Cardiff and St. Bart.'s; T. Jones, Cardiff; J Kahanas, Berne and London, J. A. Kerr, Birmingham; R. H. Knight, St. Bart's, P D Knowles, St. Mary's, T. P. Lalonde, Bristol, F J. L. Lang, St. Mary's; F. W. Law, Cambridge and Middlesex, D. J. Lawson, Cambridge and St. Thomas's; H J L Le Clerc, St. Thomas's, Anne T Leigh, Manchester, E. A. Lewis, St. George's; R. A. V. Lewys-Lloyd, St. Bart.'s, Leonora M. K. Lines, Charing Cross; T. M Ling, St Thomas's; Edith M. Little, Royal Free; G F H McCormick, Univ. Coll; G. L. M. McElligott, Oxford and St. Thomas's; L. J. McGregor, St. Thomas's; Evelyn T. D. Maclaran, St. Mary's, A. J. McMillan, Middlesex, P. Malpas, Liverpool; Ruth E. Mansfield, Westminster, Mary A. Marshall, St. Mary's; L. O. Martin, Cardiff, S. R. Mathews, Cambridge and Middlesex; H. R. B Mayor, St Thomas's; W. Mayne, Guy's; M. S. Mazhar and S Mellins, Middlesex; R. H. Metcalfe, Cambridge and St. Thomas's, G. C. Milner, Cambridge and London; J. Mintzman, Middlesex; F. E. Montague, St. Thomas's; P. Morton, London; M. Mundy, St. Bart.'s; D. L. P. M. Q. Mylechreest, St. Thomas's; C. D. Nicholson, Middlesex, J. R. P. Norman, Birmingham; G. F. Oakden, Cambridge and St. Thomas's; E. J. O'Keeffe, J. E. J. Palser, and C. H. Parker, London; G. E. G. Peirce, St. Mary's; H. A. Picton, Birmingham; H. P. Pieris, Madras and Middlesex; N. R. Pooler, St. Mary's; W. G. Porter, Guy's; D. C. Price, St. Bart.'s; Winifred E. Probert, Cardiff and Westminster; D. M. Pryce, St Mary's; Muriel A. Pugh, Charing Cross; F. W. F. Purcell, Cape and St. Thomas's; J. H. Randall, Cambridge and Univ Coll.; Marjorie D. Reddan, Royal Free; Margaret G. P. Reed, King's Coll.; H. G. St. M. Rees, Cardiff, J. L. Reeve, St. Bart.'s; A. M. Rhydderch, Cambridge and London; O. Richardson, St. Bart.'s; L. Roberts, Middlesex; Victoria A. Roberts, Royal Free; D. J L. Routh and Audrey E. Russell, Univ. Coll.; J. W. Schabort, Guy's, Gitta Schewel, Hamburg and Westminster; F. L. G. Selby, St. Mary's; T. H. Sellors, Oxford and Middlesex; D. W. Seth-Smith, St. George's; A. de M. Severne, Cambridge and St. Thomas's; W. D. Sheldrake, Guy's, H. J A. Simmons, Cambridge and Middlesex; W. S. Slater, Manchester, E. V. Slaughter, Middlesex; Beatrice G. Smith, Univ. Coll.; L. G. Smith, St. Bart.'s; H. D. Stallard, Cambridge and St. Bart.'s; C. A. Stanley, St. Thomas's, H. L. Steele, Univ. Coll.; A. F. H. Stewart, Guy's; R. K. Stockbridge, Adelaide and London; Dorothy S. Tait, Cambridge and St. Mary's; G. M. Tanner, Cambridge and St Bart.'s, Constance P. Thomas, Cardiff; D. W. R. Thomas, Cardiff and Middlesex; R. Thorpe, St. George's; G. O. Tippett, St. Thomas's; R. S. Tooth, Cambridge and St. Bart.'s, Rose A. H. Traill, Charing Cross; R. M. Walker, Univ. Coll., L. H. F. Walton and H. D. Weatherhead, St. Thomas's; Janet Welch and Violet M. Weston, Royal Free; E. A. White, St. Bart.'s; J. E. D. Williams, Univ. Coll.; J H Williams, Cardiff; H. Williamson, King's Coll.; D. B. Wilson, Cambridge and Birmingham; Jessie Wiltshire and Ada R. Winter, Univ. Coll.; J. Wiseman, Guy's; Joan Worsfold, Royal Free; and Dorothy E. Wright, Univ. Coll.

A series of six museum demonstrations, open to medical practitioners and advanced students, is to be given in the theatre of the College by Sir Arthur Keith and Mr. C. E. Shattock on Mondays and Fridays, from March 12th to 29th inclusive, at 5 P.M. The subjects of the demonstrations will be stated in our Medical Diary of the appropriate weeks.

HUNTERIAN SOCIETY.—The Hunterian Oration, of which the subject will be the Relation of the General Practitioner to Preventive Medicine, will be delivered by Sir George Newman, at 9 P.M. on Monday, Feb. 22nd, in the Mansion House, by kind permission of the Lord Mayor of London.

*Hunterian Society Dinner.*—Dr. Howard Humphris, the President, took the chair at the annual dinner of this Society held at the Hotel Victoria on Feb. 11th. There was a large gathering of Fellows and their guests, amongst whom were the Lord Mayor of London, the Bishop of Kensington, Sir Philip Richardson, M.P., Sir Anthony Hope Hawkins, and Sir Holburt Waring. In proposing a toast to the memory of John Hunter, the President touched on what he termed the lighter side of his life. In his youth Hunter had been "a bit of a lad." "They wanted," he had said, "to send me to the university to learn Latin and Greek and make an old woman of me; but I crushed their ideas like so many vermin." Later he had attained some notoriety as a resurrectionist, and again by driving a team of buffaloes through London. Could that be done to-day, asked the President, or would it be called advertisement? Sir Philip Richardson, proposing the toast of the Society, said that he had never thought that there was much in medicine, but there was a lot in doctors. All the same they were at present the bane of politicians; for the chief cause for anxiety to-day was not the birth-rate, but the death-rate, and the profession ought not to be allowed to invent so many ways of keeping people alive. In reply, the President said that the Society had come through bad times. A few years ago the average attendance had fallen to eight; it was now 80. There were 230 Fellows on the roll and some of the names were the proudest in the profession. The Society was not living in vain. John Hunter, he thought, would not be ashamed of it; he might even offer it his congratulation. Mr. T. H. Openshaw, proposing the toast of "The Lord Mayor," recalled the intimate connexion between the Society and the City. In reply, the Lord Mayor referred to the medical work which was done on behalf of the Corporation as perhaps the most valuable part of those widespread activities of which he was proud to be the temporary representative. Dr. W. Langdon-Brown dealt wittily with the guests in turn, welcoming especially the President's father; the Society had been a mere stripling of 16 summers when the President's father was born 90 years ago. The Bishop of Kensington, replying for the guests, told several admirable stories, as also did Sir Anthony Hope Hawkins, who feared that a tyranny of doctors was developing. Even now medicine was infringing on all other professions, such as the Church and the Law, with its theories and discoveries—perhaps more theories than discoveries. But as they were strong so let them be merciful. "Englishmen of our generation," he said, "like to kill ourselves as we please." Sir Holburt Waring regretted that politicians should insist on the survival of the unfit. Perhaps they should pay more attention to the well-being and survival of the fit. He described the recent press campaign against the General Medical Council as a fine study in mass psychology. Sir Bruce Bruce-Porter paid a high tribute to the Chairman, who briefly replied and proposed a toast to the hon. secretaries, Mr. Mortimer Woolf and Dr. Arthur Westerman, to which Mr. Woolf responded. In the intervals between the speeches there were old-fashioned (and very popular) songs by Mr. Lyell Johnston, and Mr. Joseph Batten was successful at the piano in rousing genuine singing from his cheerful audience.

GLASGOW UNIVERSITY CLUB DINNER.—The annual dinner of the Glasgow University Club, London, postponed from Dec. 4th last, will take place at the Trocadero Restaurant, Piccadilly, on Friday, Feb. 26th, at 7.15 for 7.30 P.M. precisely. The chair is to be taken by Sir Henry Craik, Bart., K.C.B., LL.D., M.P., and Sir Martin Conway, F.R.G.S., M.P., will respond to the toast of The Guests. Any Glasgow University men who, though not members of the club, would like to attend are requested to communicate with the hon. secretaries, 62, Harley House, N.W. 1.

TUBERCULOSIS SOCIETY.—A meeting of this Society will be held to-day, Friday, Feb. 19th, at 8 P.M., at the house of the Society of Medical Officers of Health, 1, Upper Montague-street, Russell-square, London, W.C., when Dr. C. Nicory will read a paper on Tuberculosis in Japan.

OPTICAL SOCIETY.—At the annual general meeting of this Society, held at the Imperial College of Science, on Feb. 11th, the following officers and members of council were elected for the session 1926–27: President: T. Smith, M.A. Vice-Presidents: Inst. Comdr. T. Y. Baker, R.N., B.A.; F. F. S. Bryson, M.A., B.Sc.; R. S. Clay, B.A., D.Sc.; and H. H. Emsley, B.Sc. Treasurer: Major E. O. Henrici, R.E., F.R.A.S. Secretaries: Prof. Alan Pollard, A.R.C.S., A.M.I.E.E., and F. F. S. Bryson, M.A., B.Sc. Librarian: J. H. Sutcliffe, O.B.E. Editor: John S. Anderson, M.A., D.Sc., Ph.D. Members of Council: D. Baxandall, F.R.A.S., A.R.C.S.; W. M. Brett; W. B. Coutts, M.A., B.Sc., F.R.S.E.; A. H. Emerson; E. F. Fincham; J. Guild, A.R.C.S., F.R.A.S.; E. T. Hanson, B.A.; H. C. Raxworthy; J. Rheinberg, F.R.M.S., F.R.P.S.; G. F. C. Searle, Sc.D., F.R.S.; W. Swaine, B.Sc.; and F. C. Watts.

THE LATE DR. F. A. COWARD.—Dr. Frank Augustus Coward, who died on Feb. 5th at his home at Wolverhampton, at the age of 75, at one time had one of the largest practices in Huddersfield. He was a son of the late Dr. J. E. Coward and received his medical education at Aberdeen and Edinburgh, where he took the Scottish triple qualification in 1877. Soon afterwards he joined his father in practice, and eventually succeeded him. About 20 years ago he sold his practice and left Huddersfield for Wolverhampton, where he took an active interest in public life and was prominently identified with the Mothers' and Babies' Welfare Association movement. He was twice married and leaves a widow, two sons, and two daughters.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On Feb. 25th, at 5 P.M., a lecture will be given on Some Points in the Treatment of Tuberculosis of the Uro-genital Tract by Mr. Frank Kidd in the lecture room of the Medical Society, 11, Chandos-street, London, W. 1. This will be free to all members of the medical profession.—On the same date Mr. L. B. Barrington-Ward will give a special demonstration in clinical surgery at the Royal Northern Hospital, at 2 P.M., at which all members of the Fellowship and holders of its general course tickets will be welcome.—The following courses will be continued throughout the week: A course in general medicine and surgery at the Queen Mary's Hospital, Stratford; clinical instruction in venereal disease at the London Lock Hospital; and a combined course in diseases of children at the Paddington Green, Victoria Hospital (Chelsea), and Children's Clinic. —During the first fortnight of March there will be a special post-graduate course of demonstrations at the Royal Eye Hospital, the sessions being daily from 3 P.M.—In the early part of March the Westminster Hospital will give a special course in bacteriology.—In the last three weeks of March the Chelsea Hospital for Women will hold a course in gynæcology, including operations, lectures, and demonstrations; and during the last two weeks the Brompton Hospital will hold an all-day course in diseases of the chest.—For the benefit of practitioners with only limited free time, the Hampstead General Hospital will hold a course in general medicine and surgery from 1.30 to 6 P.M.—The Tropical School will begin a course of two sessions weekly on March 10th.—Copies of all syllabuses, of the general course programme, and of the *Post-Graduate Medical Journal*, may be had on application to the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

SOCIOLOGICAL SOCIETY.—Sir Francis Younghusband will take the chair at a meeting of the society to be held at the rooms of the Royal Society in Burlington House, Piccadilly, London, W., on Tuesday, Feb. 23rd, at 8.15 P.M., when Dr. Binnie Dunlop will speak on the Malthusian Principle and Sociology.

CHADWICK PUBLIC LECTURE.—A lecture on the Activated Sludge Process of Sewage Treatment will be given by Mr. H. T. Calvert, D.Sc., of the Ministry of Health, in the lecture hall of the Institution of Civil Engineers, Great George-street, Westminster, on Friday, Feb. 26th, at 8 P.M.

ROYAL INSTITUTION.—On Feb. 23rd, at 5.15 P.M., Prof. Joseph Barcroft will give the second of three lectures on the Egg, and on Feb. 26th at 9 P.M. Mr. C. Hagberg Wright, LL.D., will deliver an address on Nicolas de Peiresc and His Circle.

PEOPLE'S LEAGUE OF HEALTH.—Amongst newly elected medical councillors to the League are Sir Thomas Horder, Sir Stanley Hewett, Sir Ronald Ross, Sir Henry J. Simson, Dr. F. N. Kay Menzies, and the medical officers of health for Bradford, Manchester, Leeds, Glasgow, and Liverpool.

DR. E. Graham Little, M.P., has been elected a Corresponding Member of the Danish Dermatological Society, and of the Royal Society of Medicine of Budapest. He has also been made an honorary member of the Italian Society of Dermatology and Syphilography.

DONATIONS AND BEQUESTS.—Among other bequests the late Mrs. Emma Pratt, of Leam-terrace, Leamington, left £1000 to Hereford General Hospital; £100 to the Hereford City Nursing and Maternity Society; £1500 to the Municipal Charity Trustees, Hereford, for charities under their control; and £200 to the Royal Midland Counties Home for Incurables, Leamington.

THE LATE DR. J. F. STRICKLAND.—After a long illness Dr. John Fletcher Strickland died at Halifax on Feb. 5th in his fifty-second year. He took his medical degree at Edinburgh in 1896, and held house appointments at Liverpool and Wakefield. Then he moved to Halifax and was amongst the first local medical men to join the Army at the outbreak of war. Unfortunately, his service undermined his health, and though he returned to practise at Booth Town he never regained his strength. Dr. Strickland was of a genial sympathetic disposition, and won many friends amongst his colleagues and patients and in his private life.

JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH, ST. ANDREWS.—On Feb. 9th Dr. L. H. Bryson read a paper on the Functional Unit and Reflex Processes, in which he criticised the prevailing teaching that certain reflex activities are controlled by centres, maintaining that in all cases control from the periphery is the only factor regulating them, apart from psychical influence. In a previous communication he had elaborated this view in regard to the cardiomotor and vasomotor reflexes. The functioning of the organs of the body, he said, was regulated according to the requirements of its functional units. The physiological unit consisted of the cell with its capillary supply. The latter could only be efficiently regulated by the cell. The activities of heart and arteries must be determined by the needs of the functional units and be regulated by them; impulses from these peripheral structures must, therefore, determine the activities of the so-called cardiomotor and vasomotor centres. The "centre" was, in fact, nothing more than a focus of integration for impulses received from the functional units at the periphery. The continued belief in specific centres was largely due to the difficulty of demonstrating afferent tracts. This principle of peripheral control acting *through* the central nervous system was incompatible with control *by* the central nervous system, and this applied to all reflex processes. For a reflex to be modified in its course implied that it was imperfect in its design. Discussing the rôle of sensation, Dr. Bryson maintained that between the sensory and motor areas of the cortex there were intermediate neurons upon which sensation arose and conditioning occurred upon the reflex processes. This he termed psychical integration. Elliot Smith had shown that, as evolution advanced, the sensory and motor areas increased in size, but that it was not to these areas that the brain of man chiefly owed its size, but rather to the part interposed between them. Dr. Bryson emphasised the clinical importance of the study of the relationship of reflex processes to sensation and of the psychological problems involved. The paper gave rise to an animated discussion in which Prof. David Morrison and others took part.

UNIVERSITY OF CAMBRIDGE.—The Pinsent-Darwin Studentship in Mental Pathology has been allotted to Dr. R. D. Gillespie, of Cassel Hospital, for research into functional nervous disorders during the next three years.

UNIVERSITY OF LONDON.—A course of three lectures on *Some Principles of Therapeutics* will be given by Prof. D. Murray Lyon at St. Thomas's Hospital Medical School on Feb. 22nd, 23rd, and 24th, at 5.30 P.M. At the first lecture the chair will be taken by Prof. H. MacLean, D.Sc.

A course of four lectures on Active and Passive Immunity will be given by Dr. R. A. O'Brien at University College Hospital Medical School on March 1st, 5th, 8th, and 12th, at 5 P.M. At the first lecture the chair will be taken by Prof. A. E. Boycott, F.R.S.

A course of three lectures on Hygiene will be given in English by Dr. Gustave Monod at the Middlesex Hospital Medical School on March 2nd, 3rd, and 4th, at 5.30 P.M. At the first lecture the chair will be taken by Sir Arthur Newsholme. Admission to all these lectures is free, without ticket.

*Mental Deficiency.*—A course on Mental Deficiency, for medical practitioners, is to be held at the University, Imperial Institute-road, South Kensington, S.W., from May 31st to June 5th. It has been arranged by the University of London Extension Board, in coöperation with the Central Association for Mental Welfare, and is intended more especially for those who are engaged as certifying officers to local authorities under the Mental Deficiency Act, 1913, as school medical officers, as medical officers of institutions, or for any who are definitely concerned with defectives. The course will be based on the requirements of the syllabus for the University's diploma in psychological medicine, and a certificate of attendance will be granted to those who have taken the whole course, including theoretical and practical work. Amongst the lectures will be seven by Dr. A. F. Tredgold on Mental Deficiency, three by Dr. F. C. Shrubsall on Administrative Procedure in the Ascertainment and Treatment of the Mentally Defective, two by Prof. Cyril Burt, D.Sc. on the Psychology of Mental Defectives, and one on Crime and Mental Defect by Dr. Norwood East. The clinical work will consist of visits to special schools and residential institutions in or near London and demonstrations by experts to small groups of students of individual cases of mental defect. The fee for the course, apart from a registration fee of 10*s.* 6*d.*, will be £2 12*s.* 6*d.* No applications will be entertained after May 10th, and it is desirable that they should be sent in as soon as possible if arrangements are to be made convenient for everyone. The Board of Control is prepared to consider applications from local authorities for contributions towards reasonable expenses incurred in sending medical officers to the course. Forms of entry may be obtained from Miss Evelyn Fox, c/o University Extension Dept., University of London, South Kensington, S.W. 7.

*Amendment of Regulations on University Titles.*—The first paragraph of Section A 2 of the Regulations on University Titles (Calendar for 1925–26, p. 320) was amended to read as follows:—Whole time Posts: The guaranteed minimum salary for a University professor giving his whole time to the work of his post shall be £1000 per annum, and the guaranteed minimum salary for a reader giving his whole time to the work of his post shall be £500 per annum; provided that in exceptional circumstances the guaranteed minimum salaries may be not less than £800 and £400 respectively. Part-time Posts: If the duties of the post do not take up the whole time of the occupant the guaranteed minimum salaries for a University professor and University reader shall be £500 and £250 respectively; provided that in exceptional circumstances the guaranteed minimum salaries of part time posts may not be less than £400 and £200 respectively.

*University of London, University College.*—Fourteen entrance scholarships and exhibitions are available for award to students entering University College in October, 1926. Three of them are tenable in any of the five College Faculties, and three are tenable in the Faculty of Medical Sciences only. Most of the scholarships and exhibitions are of the value of £40 a year for three years, but their value may be increased by supplementary bursaries if the circumstances of the scholar or exhibitioner make such a grant necessary. Further particulars may be obtained from the Secretary, University College, Gower-street, W.C. 1.

WE regret to announce the death at Cambridge on Feb. 10th of Dr. Meredith Blake Robson Swann, demonstrator in pathology in the University and Fellow of Gonville and Caius College. It is stated that ten days previously Dr. Swann, who was 32 years of age, pricked his finger whilst making a post-mortem examination.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

### *Unqualified Medical Practice.*

IN the debate last week on a motion by Dr. LITTLE, to inquire into the whole position of irregular practice in medicine and surgery, Colonel SINCLAIR'S remarks were interrupted by a motion for adjournment of the House. Substantially Colonel SINCLAIR said this:

"As the only member of the General Medical Council in this House, perhaps I may be allowed to make a few observations. The General Medical Council has been blamed, not only inside the House, but outside and in the Press, for many of its decisions. I think that many who have criticised it in a hostile sense have not taken the trouble to consider its mode of procedure, how the cases come before it, and how members receive and weigh the evidence and come to a decision. Moreover, its clemency is much greater than many Members of the House understand. Many of those who are deprived of diplomas are only deprived for one year or thereabouts, and, if not guilty of the offence again, they are reinstated in many cases within the year.

"The General Medical Council does not proceed against osteopaths and chiropractors. It really cannot recognise them, because it has no means of inspecting their skill. It has no means of understanding or estimating the nature of the education furnished or the standards of education and examinations which they take. It would not be in the public interests to take the American diplomas at their face value. Many of these are granted by organisations some of which are of a proprietary nature and are not recognised in the United States. It would be hazardous to include all these practitioners in the general register unless there was some provision made for inspecting the colleges, the nature of the instruction given, and of the examination passed.

"In the case of dentists, when the country some years ago was flooded by a large number of unqualified men, the Dentists Act of 1921 was passed for the protection of the public. It was then made, with great severity, a penal offence to practise dentistry unless the name of the dentist was on the Dental Register. Therefore, it appears to me to be right in the public interest that there should be an inquiry respecting the persons entitled to practise medicine and surgery, including manipulative surgery and plastic surgery, lest great damage should be done to the suffering public by unqualified people carrying out manipulative surgery with great energy and even rough handling. Practitioners who desire to practise manipulative surgery should provide a guarantee that they have been properly instructed in the anatomy of the human body, physiology and pathology, so that they would be able to distinguish those patients to whom they ought not to apply manipulative surgery, and who ought to be treated by other means. It ought to be borne in mind that the General Medical Council does not put a veto on the class of practice which its registered members may adopt. All that it requires is that they shall have been trained in medicine, surgery, and midwifery. They may practise manipulative surgery, homœopathy, or other forms of service provided they show that they have graduated at some recognised institution, and that they have a thorough knowledge of anatomy, physiology, and pathology.

"The General Medical Council is a much maligned body. It has been suggested that it ought to be reinforced by the addition of lay members. We have no objection to the addition of lay members. The machinery exists already for their introduction. If the Privy Council would use its power of nomination for the purpose of placing lay members on the General Medical Council, it is quite within its competence to do so. Moreover, the universities of the Kingdom might send lay professors to the Council instead of medical members. That is within their competence. The difficulty is that people cannot be got to take an intelligent interest in the work of the General Medical Council unless they are medical men, because three-fourths of the work of the Council has to do with medical education and registration. It is difficult for the laity really to understand and to keep a sustained interest in the regulations of the medical curricula and the medical examinations.

"Much has been said with respect to the cures effected by the bone setters. I do not deny that the manipulative surgeons have done good work, but the general medical profession have done equally good work."

### *New Midwives' Legislation.*

The Bill to amend the Midwives Acts and for other purposes, introduced by Lieut.-Colonel FREMANTLE in the House of Commons on Thursday, Feb. 11th, is in two parts. It provides (*a*) for the better control of unqualified midwives, for decreasing the deficit in the funds of the Central Midwives Board, which is due to the inclusion in the roll of midwives published annually of the names of large numbers of women who for one reason or another are not practising; for the payment of compensation to midwives who are suspended from practice through no fault of their own; for fixing a time limit for the rendering of claims for fees by medical practitioners called in by midwives on emergencies; and certain other purposes; and (*b*) for the registration and inspection of maternity homes by the councils of counties and county boroughs. The Bill is supported by Major J. W. HILLS, Mr. ARTHUR GREENWOOD, and Sir HENRY SLESSER.

## HOUSE OF COMMONS.

### WEDNESDAY, FEB. 10TH.

### *Treatment of Encephalitis Lethargica.*

Mr. AMMON asked the Minister of Health whether the arrangements made between his department, the London County Council, and the Metropolitan Asylums Board for the treatment of encephalitis lethargica cases was for medical care only.—Sir K. WOOD replied: My right hon. friend assumes that the hon. Member is referring to the arrangements made by the Metropolitan Asylums Board for the institutional treatment of children suffering from the mental after-effects of encephalitis lethargica. These arrangements provide for the ordinary hospital accommodation of the patients and all necessary treatment and medical care.

Mr. AMMON asked the Minister of Health whether his attention had been called to the case of a young man who was charged with theft at the Lambeth police-court on Jan. 5th last, and was found to be suffering from the after-effects of encephalitis lethargica; and whether, in view of the increase of such cases, he would take steps to consider ways and means of providing adequate treatment and training for the victims of this and other brain troubles?—Sir K. WOOD replied: The answer to the first part of the question is in the affirmative. As regards the second part, the question of the best means of providing for such cases as that mentioned is receiving careful consideration by the department concerned.

### *Mental Condition of Juvenile Offenders.*

Mr. AMMON asked the Home Secretary what was the standing or qualifications demanded of medical men engaged in prisons and remand homes to examine and report as to the mental condition of juvenile offenders brought before the magistrates.—Sir W. JOYNSON-HICKS replied: At places of detention to which young persons under 16 are remanded medical attendance is usually afforded by a doctor in general practice, but where mental trouble is suspected the case might be referred to a school medical officer or other specially qualified doctor. Offenders over 16 are remanded to prisons where the medical officers are experienced general physicians and surgeons of good qualifications, with special experience of insanity and mental deficiency. I may add that the medical examination of young offenders is being considered by the committee which I appointed last year to inquire into the treatment of young offenders.

### THURSDAY, FEB. 11TH.

### *Artificial Limbs.*

In reply to questions by Mr. T. HENDERSON, Mr. PARKINSON, and Mr. WHITELEY on the supply of artificial limbs to ex-Service men,

Major TRYON, Minister of Pensions, said: The present arrangements for the supply of artificial metal legs are working quite satisfactorily and I am not prepared to reconsider them. The few cases in which representations are made for a special make of limb not covered by the present contracts are considered by a board of surgeons constituted for the purpose, and where necessary, in accordance with their advice, arrangements are made for the supply of an artificial limb similar to that previously used by the man though not covered by the present contract.

### *Indecent Literature.*

Sir N. GRATTAN DOYLE asked the Home Secretary whether he had received complaints from members of the medical profession and others regarding the transmission through the post of descriptive and illustrated circulars advertising various kinds of contraceptives; whether the Public Prosecutor had been consulted with reference thereto, and, if so, with what result; whether he would say if existing legislation was sufficient to protect the public against the effects of this traffic; and what steps he proposed to take in order to deal with it.—Sir W. JOYNSON-HICKS replied: Yes, Sir. I have received numerous complaints and the Director of Public Prosecutions has given the subject close attention in conjunction with my department. He has taken, and will continue to take, action in cases which appear to him to involve a contravention of the law, but the success of such proceedings depends upon the magistrates being satisfied that the postal matter complained of is in fact indecent, and I am afraid that the divided state of opinion on the subject of birth control has been to some extent reflected in the decisions given. I know of no further steps which I could usefully take.

### *Birth-rate and Birth Control.*

Sir N. GRATTAN DOYLE asked the Minister of Health whether, in view of the progressive decline in the birth-rate of this country, he could give the percentage birth-rate during last year and the same rate for the principal countries in Europe.—Mr. N. CHAMBERLAIN replied: The following is the information asked for. As the 1925 birth-rates for foreign European countries are not yet available, the figures asked for are given for the most recent years for which information has been received:—

*Birth-rate per 100 Population.*

| | | | |
|---|---|---|---|
| England and Wales (1925) .. .. | 1·83 | Switzerland (1924) | 1·87 |
| Ditto (1924) .. .. | 1·88 | Netherlands (1924) .. | 2·52* |
| Sweden (1924).. .. | 1·81* | Belgium (1924) .. | 1·99 |
| France (1924) .. .. | 1·89 | Spain (1924) .. .. | 2·99* |
| Finland (1924).. .. | 2·24 | Hungary (1924) .. | 2·68 |
| Germany (1924) .. | 2·04* | Czecho-Slovakia (1924) | 1·95* |
| Denmark (1923) .. | 2·54 | Austria (1923) .. | 2·25* |
| | | Italy (1923) .. .. | 2·93 |

* Provisional.

### *Small-pox in Durham.*

Mr. LANSBURY asked the Minister of Health how many cases of small-pox had occurred in the county of Durham since the present outbreak started down to the week ending Feb. 6th, showing the number of cases each week; how many deaths, if any, had taken place; would he give the names of the towns, districts, and villages where the outbreak was most severe; and what steps he had taken to discover the cause of the outbreak and the reasons which had led to so rapid a spread of the disease.—Mr. N. CHAMBERLAIN replied: The total number of cases of small-pox which have been notified in the county of Durham from Jan. 1st, 1925, to Feb. 6th, 1926, is 1960. In two instances small-pox was entered on the death certificate as one of the causes of death. Numerous visits have been paid to the affected districts by medical officers of my department for the purpose of advising and assisting the local authorities, and their officers and their reports indicate that the outbreak may be attributed to the spread of the disease from other infected areas and that the present prevalence is in large measure due to the neglect of vaccination and in some districts to the lack of adequate hospital accommodation. The following is a statement showing the number of cases notified each week during the period from Jan. 1st, 1925, to Feb. 6th, 1926, and the names of the towns and districts where the disease is most prevalent:—

1925: Week ended Jan. 24th, 1; 31st, 3; Feb. 7th, 2; 21st, 2; 28th, 1; March 7th, 1; 14th, 2; 21st, 31; 28th, 3; April 4th, 8; 11th, 8; 18th, 8; 25th, 6; May 2nd, 7; 9th, 10; 16th, 4; 23rd, 4; 30th, 3; June 6th, 2; 13th, 4; 20th, 8; 27th, 11; July 4th, 19; 11th, 43; 18th, 17; 25th, 20; Aug. 1st, 7; 8th, 18; 15th, 9; 22nd, 8; 29th, 10; Sept. 5th, 9; 12th, 11; 19th, 12; 26th, 12; Oct. 3rd, 10; 10th, 11; 17th, 23; 24th, 29; 31st, 42; Nov. 7th, 37; 14th, 49; 21st, 40; 28th, 70; Dec. 5th, 80; 12th, 86; 19th, 119; 26th, 104.

1926: Week ended Jan. 2nd, 98; 9th, 138; 16th, 139; 23rd, 177; 30th, 182; Feb. 6th, 213.

No cases were notified for the weeks ended Jan. 3rd, 10th, and 17th, and Feb. 14th, 1925, respectively.

The areas where the disease is most prevalent are: Gateshead C.B., Blaydon U.D., Chester-le-Street U.D., Whickham U.D., South Shields C.B., Auckland R.D., Chester-le-Street R.D., Easington R.D., Houghton-le-Spring R.D., Lanchester R.D., Sunderland R.D., Spennymoor U.D.

Mr. BATEY: Is the right hon. gentleman aware that the districts that are the worst affected are the districts where the men have been most impoverished?

Mr. CHAMBERLAIN: No, Sir; I do not think so.

Commander WILLIAMS: Can the right hon. gentleman say what percentage of these cases have been vaccinated?

Mr. CHAMBERLAIN: I cannot answer that without notice.

Mr. LANSBURY: Is it not a fact that in the county of Durham just now in all the districts poverty is very prevalent, and is it not a proved fact that disease attacks people whose physique is lowered through want of food?

Mr. CHAMBERLAIN: I think it would be very difficult to draw any safe deductions from the figures in my possession, but they certainly do not bear out the suggestion made the other night that the cessation of poor relief in a particular union was the cause of the special prevalence of disease in that union, seeing that in that particular union the prevalence of disease is considerably less than in an adjoining union where there has been no such cessation.

Mr. LAWSON: How does the right hon. gentleman account for the fact that in the areas where there has been most unemployment the outbreak of small-pox is most prevalent?

Mr. CHAMBERLAIN: Possibly there has been less vaccination there.

### *Physique and Health of Air Force Recruits.*

Mr. Hore-Belisha asked the Secretary of State for Air (1) how many men were accepted in the year 1925 for His Majesty's Air Force, and how many were rejected on account of some physical deficiency; and (2) what percentage of applicants were rejected for the Air Force in 1925, and what the principal defects were, giving the proportions to the total number of rejections.—Sir S. Hoare replied: The number of men passed fit for service in the Air Force was 2883, the number rejected as medically unfit was 3111, or a percentage of 51·10 of those medically examined. The principal causes of rejection as revealed by examination by Service medical officers were as follows:—

| | Per cent. | | Per cent |
|---|---|---|---|
| Defective teeth .. | 13·0 | Diseases of lungs | 8·1 |
| Diseases of the heart* . | 12·1 | Defects of vision | 7·3 |
| Poor physique.. .. | 9·5 | Defects of extremities.. | 2·3 |
| *Diseases of the ears* .. | 8·8 | *Other causes* | 30·0 |
| Deformities of feet .. | 8·6 | | |

* Valvular disease or disordered action.

### *Salt on Snowy Streets.*

Sir Alfred Butt asked the Minister of Health whether his department had conducted investigations into the effect on the health of the public from the use of salt on snowy streets; how long the resultant liquid remained below the freezing point of water; and whether any representations had been made to local authorities on the subject.—Mr N. Chamberlain replied: The model by-laws issued by my department for the prevention of nuisances require, when salt is thrown upon snow on a footway, the resultant product shall be removed as soon as possible. These by-laws have been adopted by a large number of local authorities. I understand that no investigation has been conducted by my department on the particular point mentioned by my hon. friend, and I am advised that it would be most difficult to devise experiments from which reliable conclusions could be drawn.

### *Naval Leave in Small-pox Areas.*

Mr Bromfield asked the First Lord of the Admiralty why Fleet orders had been issued giving a recapitulation of the restrictions in regard to leave for officers and men proceeding to any town or district in which an outbreak of small pox has been notified, seeing that all the officers and men in question had been vaccinated at least once, and many of them several times, since joining the Service.—Mr. Davidson replied: Restrictions in regard to leave for officers and men in districts where small-pox is prevalent are necessary in view of the fact that, although every reasonable precaution is taken to ensure the protection of every individual in the Navy against this disease by vaccination, there still must be a certain proportion unprotected, either by oversight or on the grounds of conscientious objection, to which must be added recent entries who have not yet undergone protection by vaccination. In addition, H.M. dockyard employees are not under the same control as naval personnel as regards vaccination, and consequently a large proportion of them are non-immune, and as naval personnel and these employees are intimately associated, infection might be carried either by a person in the early stages of small-pox or by the clothing of one who has been recently in contact with a case. It is considered that no precaution should be neglected to prevent a case of small-pox occurring in one of H.M. ships or establishments, as, apart from *the menace to health*, *there* is the question of the great expense incurred in isolation and destruction of clothing, bedding, etc., necessary owing to the highly infectious nature of this disease. In addition, there is the inconvenience and expense of *keeping* all *contacts of a case in* isolation and under observation for 14 days.

### *Midwives and Maternity Homes Bill.*

Lieut.-Colonel Fremantle presented a Bill to amend the Midwives Acts 1902 and 1918, and to provide for the registration of maternity homes. The Bill was read a first time.

## Monday, Feb. 15th.

### *Board of Lunacy Control.*

The House went into Committee of Supply on a supplementary estimate for £26,600 for the salaries and expenses of the Board of Control (Lunacy and Mental Deficiency) in England, and for grants in respect of maintenance of certain ex-Service mental patients and certain damages and costs in a legal action.

Mr. Pethick-Lawrence called attention to the sum of £2800 which appeared in the estimate in respect of the case of Harnett v. Bond. In this case, he said, the plaintiff, Mr. W. S. Harnett, brought an action against Dr Bond, a Commissioner of the Board of Control, and another, on the ground of alleged wrongful imprisonment as a lunatic. He was released according to the statement of the medical officer of the asylum on 28 days' leave. He found that his brother was in charge of his property and went to the Board of Control to have the matter investigated. While he was there he interviewed a member of the Board, Dr. Bond, who detained him and sent him back to the asylum, where he remained in custody for eight years. The jury, after hearing the case, awarded £25,000 damages against Dr. Bond and £5000 against the medical officer of the asylum. On appeal the Court of Appeal ordered a new trial as between the plaintiff and Dr. Bond. The plaintiff appealed against this judgment to the House of Lords who dismissed the appeal. At this stage the Board of Control offered a sum of £250 as damages and £2500 in respect of plaintiff's costs. After negotiations this offer was accepted. The case was a serious one, as this unfortunate man had not merely suffered eight years' detention as a lunatic when he was sane, but he had also spent a sum of over £25,000 to obtain his rights. The taxpayers who had had to pay the sum *of £3000 or £4000 already, was now called upon to pay* a further sum of £2800.

Sir Kingsley Wood (Parliamentary Secretary to the Ministry of Health), in reply, said he thought that the hon. Member had been wholly misinstructed as to the facts of the case. He (Sir K. Wood) intended to be very guarded in his reply, as he understood that Mr. Harnett had brought another action in the King's Bench Division against the doctor who gave the first certificate of his insanity.

Mr. Short asked the Chairman (Mr. Hope) if it was right for the Committee to discuss the matter, seeing that it was again to be brought into court. He suggested that the vote should be withdrawn pending the final decision of the case.

Sir Douglas Hogg (Attorney-General) said it was possible to discuss the vote, which was necessary to carry out the arrangement come to in the first action, without touching on the issue in the forthcoming case.

The Chairman said that in the circumstances it would be better to withdraw the vote until later to allow him to consider the situation, as he would not like to rule on the matter right off in case it might be made a precedent.

The vote was postponed accordingly.

### *The Dentists Act.*

Mr Barnes asked the Prime Minister whether he was aware that Section 6 of the Dentists Act, 1921, was operating in such a manner as to exclude corporate bodies of working-*class constitution whose boards of management did not* include qualified dentists from supplying dental service to their members; and whether he would introduce legislation which would remove this exclusion.—Sir K. Wood replied: My right hon. friend understands that there is nothing in this Section, as interpreted hitherto, to prevent any coöperative society or similar body from arranging for the dental treatment of its members, provided it does not seek any profit in so doing, and he cannot see any necessity for amending legislation.

### *Training of Midwives in Scotland.*

Captain Wedgwood Benn asked the Prime Minister whether he had considered the possibility of extending to Scotland the provisions for grants in aid of the training of midwives, laid down in Mem. No. 102, M.C.W., issued by the Ministry of Health.—Sir John Gilmour (Secretary of State for Scotland) replied: I have considered the question of extending to Scotland the provisions for grants in aid of training midwives, but I have not seen my way to make represent*ations to the Treasury on the subject*, because there is no actual or prospective shortage of midwives in Scotland.

### *Small-pox and Vaccination.*

*Sir* William Davison *asked the Minister of Health* whether he could give the House any information as to the progressive increase of small-pox in this country since the war; and whether such increase coincided with a like increase in the number of persons who were not protected by vaccination.—Sir K. Wood replied: The number of cases of small-pox in England and Wales has increased from 311 in 1919 to approximately 5300 in 1925. My right hon. friend has no information as to the number of persons who are not protected by vaccination, but there can be little doubt that it has been steadily increasing since the war, although it is generally found that considerable numbers of persons present themselves for vaccination when any serious outbreak of small pox takes place.

## Tuesday, Feb. 16th.

### *Grants to Maternity Institutions.*

Mr Neil Maclean asked the Secretary for Scotland the amount of grant paid to English maternity institutions, whether any similar grant was paid to similar institutions in Scotland; and, if not, whether, in view of the new regulations which come into force in Scotland on May 1st 1926, increasing the cost and extending the period of maternity nurses, he would make representations to the Treasury for a proportionate grant to be made to Scottish maternity institutions.—Sir J. GILMOUR replied: With regard to the first part of the question I would refer the hon. Member to the Minister of Health. As regards the second part, under the Maternity Service and Child Welfare schemes in Scotland, no payments of grant are made directly to maternity institutions, but where a local authority has made approved arrangements to a voluntary institution, or itself provides an institution, the approved cost ranks against the maternity and child welfare grant. In reply to the last part of the question, as the hon. Member is doubtless aware, the whole question of the finances of voluntary hospitals in Scotland has been the subject of a remit to a special committee whose report I have just received.

### *Miners' Nystagmus.*

Mr. WILFRID PALING asked the Secretary for Mines the number of coal-miners certified as having nystagmus in each of the years from 1921 to 1925 inclusive.—Colonel LANE-FOX replied: The number of certificates of disablement given by certifying surgeons was: In 1921, 1986; in 1922, 4047; in 1923, 1050; in 1924, 3446. The figures for 1925 have not yet been compiled by the Home Office.

Sir H. BARNSTON, on behalf of the Home Secretary, also replied: The number of new cases of miners' nystagmus for which compensation was paid under the Workmen's Compensation Acts in each of the years 1921 to 1924 was as follows: 1913 in 1921; 4092 in 1922; 3883 in 1923; and 3271 in 1924. The figures for 1925 are not yet available.

### *Lead Paints Protection Bill.*

Lieut.-Colonel HENDERSON asked the Home Secretary whether he proposed to reintroduce the Lead Paints Protection Bill this session.—Sir W. JOYNSON-HICKS replied: I hope to reintroduce this Bill very shortly.

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, Feb. 22nd.—8 P.M., ODONTOLOGY. Mr. F. Coleman: An Ivory Exostosis of the Mandible Simulating a Tooth. Sir Frank Colyer: Abnormal Teeth from the Region of the Premaxilla.

TUESDAY.—5.30 P.M., MEDICINE, ELECTRO-THERAPEUTICS, SURGERY, AND LARYNGOLOGY. Dr. L. S. T. Burrell, Dr. Stanley Melville, Mr. J. E. H. Roberts, and Mr. Somerville Hastings: Open discussion on the Diagnosis and Treatment of Intrathoracic New Growths.

WEDNESDAY.—5.15 P.M., COMPARATIVE MEDICINE. Dr. P. H. Manson-Bahr: The Relation of Wild Animals to Certain Diseases of Man. Discussion opened by Dr. Andrew Balfour.

THURSDAY.—8.30 P.M., UROLOGY. Prof. Hugh MacLean: The Testing of Renal Function and the Treatment of Renal disease. Discussion.

FRIDAY.—4.30 P.M., STUDY OF DISEASE IN CHILDREN. Clinical Meeting at Paddington Green Children's Hospital, W. 8 P.M., EPIDEMIOLOGY AND STATE MEDICINE. Dr. M. Greenwood and Prof. W. W. C. Topley: Experimental Epidemiology: Some General Considerations.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Feb. 22nd.—8.30 P.M., Discussion on the Ætiology and Diagnosis of Gall-stones, to be introduced by Sir Humphry Rolleston, Bart., followed by Mr. R. P. Rowlands and Dr. Robert Knox.

WEDNESDAY.—9 P.M., Dr. E. Farquhar Buzzard: Principles of Treatment in Relation to Diseases of the Nervous System. (Second Lettsomian Lecture.)

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.

FRIDAY, Feb. 26th.—8.30 P.M., Papers will be read by Sir Thomas Horder and Dr. F. W. Price on Syphilis of the Heart and Aorta, more Especially the Early Signs and Symptoms. A discussion will follow.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

MONDAY, Feb. 22nd.—5 P.M., Sir Arthur Keith: The Taungs Anthropoid: Its Zoological and Geological Position.

WEDNESDAY.—5 P.M., Fossil Anthropoids of Europe and of Asia.

FRIDAY.—5 P.M., The Kivu Gorilla and its Bearing on the Problems of Human Evolution.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Feb. 26th.—4 P.M., Mr. Harold Kisch: Frontal Sinus Disease and its Treatment.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: FEBRUARY–MARCH, 1926.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, Feb. 22nd.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., The Neuro-Muscular System, I., The Action of Muscles: Dr. Kinnier Wilson.

TUESDAY, Feb. 23rd.—2 P.M., Out-patient Clinic: Dr. Walshe. 3.30 P.M., Treatment of Head Injuries: Mr. Armour.

THURSDAY, Feb. 25th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Neuro-syphilis, I.: Dr. Riddoch.

FRIDAY, Feb. 26th.—2 P.M., Out-patient Clinic: Dr. Adie. 3.30 P.M., Surgery of the Peripheral Nerves: Mr. Sargent.

The fee for the Course, including Pathology lectures, is £5 5*s*. For those who hold Perpetual Tickets the fee is £3 3*s*.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.

Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

J. G. GREENFIELD, Dean of Medical School.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, Feb. 22nd, to SATURDAY, Feb. 27th.—Fellowship of Medicine lecture, at the Medical Society, 11, Chandos-street, W. Thursday, 5 P.M., Mr. Frank Kidd: Some Points in the Treatment of Tuberculosis of the Uro-Genital Tract. Free to members of the medical profession. Special Clinical Surgery Demonstration, at Royal Northern Hospital, at 2 P.M., by Mr. L. B. Barrington-Ward.—QUEEN MARY'S HOSPITAL, Stratford, E. Special Post-graduate Course in General Medicine and Surgery. Operations, Surgical Demonstrations, Medical Demonstrations, Lectures, and Demonstrations in the Special Departments. Daily 10–5 P.M.—LONDON LOCK HOSPITAL, Dean-street, W. Clinical Course. Instruction daily in the O.P. Department.—COMBINED CHILDREN'S COURSE, Paddington Green Hospital, Victoria Hospital (Tite-street, Chelsea) and the Children's Clinic (Cosway-street, N.W.). Morning and afternoon sessions daily. Further information from the Secretary of the Fellowship of Medicine.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.

WEDNESDAY, Feb. 24th.—Dr. Harrison: Tests of Pancreatic Efficiency.

THURSDAY.—4 P.M., Mr. O. L. Addison: Some Surgical Infections of the Kidney.

QUEEN CHARLOTTE'S MATERNITY HOSPITAL, Marylebone-road, N.W.

THURSDAY, Feb. 25th.—5 P.M., Mr. L. H. S. Williams: Acute Abdominal Pain in Pregnancy.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.

WEDNESDAY, Feb. 24th.—5.30 P.M., Mr. J. G. Turner: Biological Factors of "Regulation."

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

THURSDAY, Feb. 25th.—4.15 P.M., Dr. Charles Singer: The History of Small-pox (last of four lantern lectures, open to medical students of the University of London).

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Feb. 22nd.—10 A.M., Surgical Out-patients: Mr. W. E. Tanner. 10.30 A.M., Gynæcological Operations: Mr. A. E. Giles: Throat, Nose and Ear Operations: Mr. W. Ibbotson. 2 P.M., Medical, Surgical, and Gynæcological Clinics, Operations. 6.30 P.M., Venereal Department.

TUESDAY.—2 P.M., Medical, Surgical, Throat, Nose and Ear Clinics, Operations. 4.30 P.M., Dr. W. Jenkins Oliver: Some Skin Diseases of Childhood.

WEDNESDAY.—10.30 A.M., Surgical Operations: Mr. E. Gillespie. 2 P.M., Medical, Eye, and Skin Clinics, Operations. 5.30 P.M., Venereal Department.

THURSDAY.—10.30 A.M., Dental Out-patients: Mr. E. S. Pierrepont. 2 P.M., Medical, Surgical, and Throat, Nose and Ear Clinics, Operations. 5 P.M., Operations.

FRIDAY.—10.30 A.M., Eye Operations: Mr. N. Fleming, 2 P.M., Surgical, Medical, and Children Clinics, Operations. 3 P.M., Gynæcological Clinic. 6.30 P.M., Venereal Department.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester-square, W.C.

TUESDAY, Feb. 23rd.—5 P.M., Dr. J. H. Sequeira: Tuberculosis Cutis (2).

THURSDAY.—5 P.M., Dr. Wilfrid Fox: Cutaneous Syphilis (1).

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

TUESDAY, Feb. 23rd.—3.30 P.M. (at the Jessop Hospital), Mr. King: Some Gynæcological Difficulties.

FRIDAY.—3.30 P.M. (at the Royal Infirmary), Prof. Mellanby: Some Points in Clinical Therapeutics.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE.

FRIDAY, Feb. 26th.—4.30 P.M. (at Whitworth-street West Branch), Dr. D. Dougal: The Indications for the Induction of Labour and the Methods Employed.

# Appointments.

CAMPBELL, J. G., M.D. R.U.I., has been appointed Medical Officer of Health for Saltcoats.

CREANY, R., Junr., L.R.C.P. Lond., M.R.C.S., Senior Medical Officer to the Bengal and North Western Railway.

KENNEDY, T. D., M.B., Ch.B. Edin., District Medical Officer (Medical Referee) to the Scottish Board of Health.

SHERA, A. G., M.D., B.Ch. Camb., L.R.C.P. Lond., M.R.C.S., Pathologist (Part-time) to the East Sussex County Mental Hospital, Hellingly, Sussex.

SOOTHILL, V. F., M.D., B.Ch. Camb., D.P.H., Medical Officer of Health to the City and County of Norwich.

St. Thomas's Hospital: SOUTAR, K. A., M.B., B.S. Lond., CHEESMAN, W. E., M.B., B.Ch. Cantab., MILLER, A. K., M.R.C.S., L.R.C.P. Lond., EDWARDS, J. L., M.B., B.Ch. Cantab., LENNANE, G. A. Q., M.R.C.S., L.R.C.P. Lond., MILLER, N. A., M.R.C.S., L.R.C.P. Lond., WALTER, A. G., M.R.C.S., L.R.C.P. Lond., TEDI, E. A., M.R.C.S., L.R.C.P. Lond., Casualty Officers and Resident Anæsthetists; TOMPSON, B. E., M.B., B.Ch. Oxon., THOMSON, G. W. R., M.B., B.S. Lond., HILES, W. E., M.B., B.S. Lond., DE JERSEY, G. W. S., M.B., B.Ch. Cantab., Resident House Physicians; GIBBENS, J. H., M.R.C.S., L.R.C.P. Lond., Resident House Physician for Children; WRIGLEY, A. J., M.B., B.S. Lond., BARRETT, J. C., M.B., B.S. Lond., CRAWFORD, D. P., M.B., B.S. Lond., DOBIE, J. M., M.B. B.Ch. Cantab., JACOBSON, J. N., M.R.C.S., L.R.C.P. Lond., GREY, J. C. P., M.R.C.S., L.R.C.P. Lond., NICHOLSON, H. W., M.R.C.S., L.R.C.P., Lond., Resident House Surgeons: HEATH, W. E., M.R.C.S., L.R.C.P. Lond., BOGGON, R. H., M.B., B.S. Lond., Obstetric House Physicians; SAUNDERS, K. G. W., M.R.C.S., L.R.C.P. Lond., COVERDALE, H. V., M.B., B.Ch. Cantab., Ophthalmic House Surgeons; NEILSON, D. F. A., F.R.C.S. Eng., AMSBUR, C. A., M.R.C.S., L.R.C.P. Lond., CAMBY, A. L., M.R.C.S., L.R.C.P. Lond., WALFORD, A. S. H., M.B., B.Ch. Cantab., F.R.C.S. Eng., BARRON, H. T., M.D., Lond., COOPER, G. K., M.B., B.Ch. Cantab., THORNTON, F. S., M.R.C.S., L.R.C.P., MARRINER, H. L., F.R.C.S. Edin., BUCKLEY, C. R., M.B., B.Ch. Cantab., MILFORD, R. D., M.R.C.S., L.R.C.P. Lond., LLOYD-WILLIAMS P., M.R.C.S., L.R.C.P. Lond., L.D.S., SHIRES, B., M.B., Ch.B. Edin., COOPER, G. K., M.B., B.Ch. Cantab., RICKMAN, J., M.B., B.Ch. Cantab., BROCKMAN, E. P., M.B., M.Ch. Cantab., F.R.C.S. Eng., METCALFE, R. H., M.R.C.S., L.R.C.P. Lond., TIPPETT, G. O., M.R.C.S., L.R.C.P. Lond., ELLIS, R. W. B., M.R.C.S., L.R.C.P. Lond., MYLECHREEST, D. H. P. Q., M.R.C.S., L.R.C.P. Lond., SHACKEL, E. M., M.R.C.S., L.R.C.P. Lond., WALTON, L. H. F., M.R.C.S., L.R.C.P. Lond., CHILDS, R., M.R.C.S., L.R.C.P. Lond., MAYOR, H. R. R., M.R.C.S., L.R.C.P. Lond., EVANS, I., M.R.C.S., L.R.C.P. Lond., FRYER, T. D. W., M.R.C.S., L.R.C.P. Lond., WILLIAMS, D. O., M.B. B.Ch. Oxon., DUDGEON, C. R., M.R.C.S., L.R.C.P. Lond., GABBE, S. W., M.R.C.S., L.R.C.P. Lond., Assistants.

# Vacancies.

*For further information refer to the advertisement columns.*

*Bath, Royal United Hospital.*—Asst. H.S. £100.
*Bath, Winsley Sanatorium.*—Asst. Res. M.O. £250.
*Bradford City.*—Asst. Sch. M.O.'s. £600.
*Bradford Union Institutions.*—M.O. £450.
*Bristol General Hospital.*—Two H.P.'s, two H.S.'s, Res. Obstet. O. and Cas. H.S. All at rate of £80.
*Bristol Royal Infirmary.*—H.P.'s and H.S.'s. At rate of £80.
*Cardiff, Prince of Wales's Hospital for Cripples and Limbless.*—Res. H.S.
*City of London Hospital for Dis. of the Heart and Lungs, Victoria Park, E.*—H.P. At rate of £100.
*Derbyshire Royal Infirmary, Derby.*—Hon. Dental S.
*Freemasons Hospital and Nursing Home, 237, Fulham-road, Chelsea, S.W.*—Res. M.O. At rate of £250.
*Harrogate Infirmary.*—H.S. At rate of £150.
*Holloway Sanatorium, Virginia Water, Surrey.*—Med. Supt. £1000.
*Johannesburg, S. African Institute for Medical Research.*—Pathologists. £1200, £1000, and £600 respectively.
*Kensington, Fulham, and Chelsea General Hospital, Richmond-road, Earl's Court, S.W.*—Jun. Res. M.O. At rate of £75.
*Leicester Royal Infirmary.*—H.S. At rate of £125.
*Liverpool, Royal Southern Hospital.*—Hon. Asst. S.
*Liverpool and Samaritan Hospital for Women.*—H.S.
*London Hospital, E.*—Vacancy on Hon. Surg. Staff.
*Manchester, Royal Children's Hospital, Gartside-street.*—Asst. M.O. At rate of £150.
*Manchester, Royal Children's Hospital, Pendlebury.*—Res. Surg. O. At rate of £80.
*Mount Vernon Hospital, Northwood, Middlesex.*—S.
*National Hospital for Diseases of the Heart, Westmoreland-street, W.*—Res. M.O. At rate of £150.
*National Hospital for the Paralysed and Epileptic, Queen-square, W.C.*—Med. Reg. £200.
*North Middlesex Hospital, Edmonton, N.*—Res. Med. O. £200.
*Norwich, Norfolk and Norwich Hospital.*—H.S. £140.
*Nottingham General Hospital.*—H.P. At rate of £150.
*Nottingham, Ransom Sanatorium.*—Asst. Res. M.O. £375.
*Oxford, Radcliffe Infirmary and County Hospital.*—H.P. At rate of £120.
*Paddington Board of Guardians, Harrow-road, W.*—Res. Asst. M.O. £330.
*Plymouth, Udal Torre Sanatorium, Yelverton.*—Res. M.O. £150.
*Preston Union.*—Res. M.O. £600.
*Queen's Hospital for Children, Hackney-road, Bethnal Green, E.*—H.S. at rate of £100.
*Royal Chest Hospital, City-road, E.C.*—S.
*Royal Free Hospital and Lond. Sch. of Medicine for Women, Gray's Inn road, W.C.*—Sen. Asst. Pathologist. Full-time.
*St. Bartholomew's Hospital.*—Refraction Asst. One guinea per session.
*St. Mark's Hospital for Cancer, Fistula, &c., City-road, E.C.*—H.S. at rate of £200.
*St. Mary's Hospital, W.*—Second Asst. Pathologist. £250.
*St. Thomas's Hospital.*—Res. Asst. P.
*Salford Royal Hospital.*—Radiologist. £300.
*Samaritan Free Hospital for Women, Marylebone-road, N.W.*—H.S. At rate of £100.
*Singapore Municipality, Straits Settlements.*—Asst. Health O. £1008.
*Southampton, Royal South Hants and Southampton Hospital.*—Jun. H.S. At rate of £150.
*Swansea Hospital.*—H.S. £150.
*West London Hospital, Hammersmith, W.*—H.P. and two H.S.'s. Each at rate of £100.
*Western Ophthalmic Hospital, Marylebone-road, N.W.*—Sen. and Jun. H.S.'s. At rate of £150 and £100 respectively.
*York County Hospital.*—H.S. £150. Also H.S. for Eye, Ear, and Throat Dept. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacancies for Certifying Factory Surgeons at Strathaven (Lanarkshire), Craven Arms (Salop), Sherburn-in-Elmet (Yorks, W. Riding), and at Wartle (Aberdeenshire).

# Births, Marriages, and Deaths.

## BIRTHS.

JORY.—On Feb. 15th, at a nursing home, to Yvonne, wife of Philip J. Jory, D.S.O., M.B., F.R.C.S., of a son.

MOORE.—On Feb. 9th, at Ickleton, Great Chesterford, Essex, the wife of Dr. J. York Moore, of a daughter.

PATERSON.—On Feb. 5th, at Queen Anne-street, W., Dorothy, the wife of Dr. Donald Paterson, of a son.

SCHULZ.—Talitha Schulz, daughter of Muriel Wrinch and H. H. Schulz, M.A., M.R.C.S., L.R.C.P., born on Dec. 18th, 1925, at The Athelstan House Maternity Home, Feltham, Middlesex.

## MARRIAGES.

COLTART—HAWKE.—On Feb. 11th, at St. Mary's Church, Shortlands, Kent, John Gilchrist Coltart, M.B., Ch.B., of Park Langley, Beckenham, Kent, to Dora Phyllis, daughter of Dr. and Mrs. Hawke, Shortlands, Kent.

GRAY CLEGG—NIGHTINGALE.—On Feb. 10th, at the Wesleyan Methodist Church, Manchester-square, W., by the Rev. A. Gordon James, John Gray Clegg, M.D., B.S., F.R.C.S., &c., of Manchester, to Edith Anna Nightingale, of London.

MILLER—BATCHELLER.—On Feb. 10th, at St. Peter's, Maidstone, Thomas Mackinlay Miller, *M.C.*, of Grosvenor-road, Tunbridge Wells, late R.A.M.C., to Freda, youngest daughter of Robert Batcheller, of Engadine, Maidstone.

## DEATHS.

AIR.—On Feb. 12th, at Tennison-road, South Norwood, Alexander Cummings Air, L.R.C.P. Lond., M.R.C.S. Eng., in his 81st year.

BATT.—On Feb. 14th, at The Hill, Witney, Oxon, Charles Dorrington Batt, M.B., J.P., aged 80 years.

HAYNE.—On Feb. 14th, 1926, Louis Brightwell Hayne, M.B.E., M.D. Cantab., aged 50 years, of Sheen House, Harrogate, second son of the late Henry Hayne, of The Ferns, Tunbridge Wells, and Mark Cross, Sussex, and of Mrs. Hayne. Was interred at the Borough Cemetery, Tunbridge Wells, on Wednesday, Feb. 17th.

MISKIN.—On Feb. 9th, at Harrington-road, Brighton, George Albert Miskin, M.D., aged 84.

NORTON.—On Feb. 8th, at St. Leonards-on-Sea, Algernon Charles Wodehouse Norton, M.D., Crimean veteran, son of the late Dr. Robert Norton, in his 93rd year.

OLIVER.—On Feb. 10th, at his sister's house, Beare Green, after a very short illness, Matthew Baillie Oliver, O.B.E., F.R.C.S., of Harley-street.

RAYNER.—On Feb. 8th, at The Lodge, Hythe, Kent, Henry Rayner, M.D., of Upper Terrace House, Hampstead, aged 84.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

MIDDLESEX HOSPITAL ANNEXE.—The new Middlesex Hospital Annexe in Cleveland-street, London, W., will be opened on Tuesday, Feb. 23rd, at 3.30 P.M., by the Minister of Health.

SYDNEY RINGER MEMORIAL LECTURE.—*Regulation of the Coronary Circulation* will be the subject of the Sydney Ringer lecture at University College Hospital Medical School, which is to be delivered by Dr. G. V. Anrep on Thursday, March 4th, at 5 P.M. The lecture will be open to medical practitioners and students.

# Notes, Comments, and Abstracts.

## INDIAN SCIENCE CONGRESS.

THE thirteenth annual meeting of the Indian Science Congress, under the auspices of the Asiatic Society of Bengal, took place in Bombay during the first week in January. Sectional meetings were held in agriculture, medical and veterinary research, chemistry, botany, zoology, mathematics and physics, geology, anthropology and psychology.

In a country like India, with such extremes of climate, such serious epidemics of disease, such varying conditions of living, such different standards of health in the several races which inhabit the country, medical research is of peculiar importance and interest. Research activities have until recently been confined to the few, but the crowded benches at the meetings of the Indian Science Congress at Bombay justify the hope that the practitioner and even the general public are beginning to take a stronger interest in the solution of many problems of vital importance to India. In a presidential address, Mr. Albert Howard, Director of the Institute of Plant Industry, Indore, dealt with the connexion between agriculture and science. Speaking of irrigation, he mentioned that there are many differences between irrigated crops and those grown under natural conditions, and that plants and animals on irrigated areas do not have the same well-being as those living under natural conditions, while there is a tendency among the people for intense malaria to develop. He raised the question: Is this malaria due to increased opportunity for mosquito breeding, or is it that the nutritive and vitamin value of the crops grown under canal irrigation is less than under natural conditions, and is the lowered resistance of the people the cause of the increased malaria? He believed that McCarrison was on the eve of throwing light on these questions when his investigations were cut short by Government retrenchment. The presidential address to the medical section was given by Dr. Raw, one of the private practitioners of Bombay. Great stress was laid on the importance of the general practitioner interesting himself in research, and endeavouring to maintain the high standard of work which has hitherto been held by the men of the I.M.S. He lamented the loss sustained by Bombay a few years ago, when the Bombay Tropical School was abandoned after all arrangements for its opening had been concluded and much expenditure incurred. Had the school been now in existence, he said, the whole atmosphere of Bombay as regards research would be altered.

Many interesting papers were read. One by Major Russell showed the working out of a population growth curve for the Madras Presidency on the formula given by Prof. Raymond Pearl and Prof. Read of the Johns Hopkins University. This, he said, has been tested by the growth of populations in many European countries where censuses are regularly taken and has been proved correct, and when applied to Madras it indicated that the population is within a million or two of its maximum expansion and that some violent upheaval or epidemic may be anticipated to keep it within possible limits. Another paper by the same author described a cholera periodicity in India occurring every six years. Some papers were read on plague vaccine and prophylactic. It was mentioned more than once that the Haffkine plague prophylactic has held first place for 20 years and has never been improved on by later workers. Bombay is beginning to realise what India owes to Haffkine, and has marked its grateful if over-tardy recognition by altering the name of the Bombay Bacteriological Laboratory to the "Haffkine Institute."

A considerable part of one morning was given up to an account of the research work on sprue now being carried on at the Haffkine Institute. The analysis of the gastric and intestinal contents, urine and blood was discussed. It seemed to be generally considered that the disease was probably a general inflammatory condition of the digestive mucous membrane not caused by yeasts, possibly of infective origin, and with a definite lowering of the ionic calcium of the blood. A paper on anæmia led to a discussion on the pernicious anæmia of pregnancy, which is very prevalent in Bombay. An interesting paper dealt with the development of malaria in connexion with the land reclamation scheme in Bombay. A large area of sea is being reclaimed by means of dredging operations, clay from the harbour being poured through pipes on to the chosen surface of sea. As the clay settles, an uneven surface is formed with many pools of sea water in which mosquitoes breed freely. The coolies camp on the outskirts and are no doubt heavily infected. In spite of this the antimalarial measures have been so thorough that the incidence of malaria in Colaba (the adjacent part of Bombay) has been diminished, although malaria has been severe in other parts of Bombay.

During the congress many pleasant excursions to places [illegible]rest in Bombay were arranged and much private [illegible]ity was shown to members of the congress.

## "MARIAHUANA."

UNDER this name, which is peculiar to Mexico and is probably of Indian origin, it is not easy to recognise our old friend *Cannabis indica*. But it is the official name for it in Mexico, and as such it figures very largely among the contraband drugs which are seized yearly by the Mexican customs authorities. The growing, importation, and sale of *Cannabis sativa*, as it should be called, are strictly forbidden in Mexico, where it is classed amongst the "drogas heroicas" with morphine, heroin, and cocaine. It grows wild in parts of Mexico, and the leaves are rolled into cigarettes. The report of the Mexican Ministry of Health shows that large quantities are confiscated in the year, but this is probably in the bulky form of dried leaves not prepared in any way. The smuggling seems to be chiefly on the United States border.

## MANCHESTER ROYAL INFIRMARY.

AT the annual meeting of the trustees of the Manchester Royal Infirmary held on Feb. 12th, the board expressed regret at the resignation of Sir William Cobbett, who had been chairman for 21 years. It was greatly owing to his energy that the money was got together for the building of the infirmary. A life governor stated that at Aberdeen Royal Infirmary the ordinary income exceeded the expenditure, and that last year about £100,000 was collected from working men alone for the Glasgow infirmaries. In Manchester the comparatively meagre sum of £10,000 had been contributed. He appealed for an organiser to foster interest in the city's hospital and for the appointment to the board of a member to represent the workmen outside. Pointing out that there were committees of workmen in connexion with the Hospital Saturday and Sunday Funds, he said that in Scotland organisers went to the works to speak to the workmen. The workpeople of Manchester, he was sure, would be agreeable to a regular weekly deduction for the hospitals, and if the workers were persuaded to do better, then the employers would follow suit.

## THE FOOD OF THE COUNTRY.

THE centenary of Brillat-Savarin, marked by the issue of a sumptuous translation of his great work,[1] has also been acclaimed at memorial feasts in Paris and London. When Brillat-Savarin, having caught a cold at the age of 80, died in Paris this month 100 years ago he believed that he had put an end, once and for all, to the foolish confusion which existed in men's minds between gluttony and gourmandism; between eating grossly, like a beast, and eating choicely, like a man. Within his own country, perhaps, his faith was justified, and the wise and witty gospel of his "Physiologie du Goût" was not preached in vain. France is still the land where gourmands are happiest. Yet even in France societies have been formed (ominous phrase!) in recent years for the encouragement of good cooking in general, and in particular for the preservation of local or provincial recipes of outstanding excellence; and too often it has proved necessary not so much to preserve what exists, as to revive what had been forgotten. The "wine of the country" is often sentimentally extolled by travellers, and is sometimes extremely nasty; the "food of the country" apt to be so excellent gets no such notice and its disappearance goes unnoticed. In England the untranslatable designations in restaurants of all but the simplest dishes, and the gradual disappearance of "tariff" and "bill of fare" from the language, in favour of "carte" and "menu," show that we are prepared in this country to support the very thing which the French gourmets regret, and in England many of our national dishes have disappeared. We are gastronomically denationalised save in matters of daily routine; we imitate our continental neighbours, and our imitations are not convincing.

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[1] The Physiology of Taste. Peter Davies, 1, Bedford-street, London, W.C. £2 2*s*.

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A VARIETY ARTISTS' BED.—Last week, at the Royal Northern Hospital, a bed was dedicated to the Variety Artists' Federation in recognition of the services rendered by it to the hospital. Sir Harry Lauder unveiled a tablet which has been placed over the bed.

A HOSPITAL BAZAAR.—The Duke of York attended the "Barbary Coast Bazaar" held recently at Sunderland in aid of the fund that is being raised for the new Monkwearmouth and Southwick Hospital. It is now announced that the bazaar, which was visited by more than 60,000 people, has produced a profit of £9511. This hospital and Sunderland Royal Infirmary have raised between them £110,000 during the last 12 months.

# An Address
ON THE
# MALARIA TREATMENT OF GENERAL PARALYSIS OF THE INSANE

*Delivered at the Liverpool Medical Institution on Feb 4th, 1926,*

BY WARRINGTON YORKE, M.D LIVERP.,
PROFESSOR OF PARASITOLOGY, UNIVERSITY OF LIVERPOOL.

ATTEMPTS to discover a successful treatment of general paralysis of the insane have taken two main lines, the one, which we might call specific therapy, is naturally of comparatively recent date and commenced with the recognition of the true nature of the disease, whilst the other—non-specific therapy—dates back to very early times.

Until recently all efforts at specific therapy have proved futile. Intrathecal, subdural, intraventricular, and intracisternal injections of salvarsan or of its various modifications, or of salvarsanised serum, were found to be just as useless as the earlier methods of inunction or intramuscular injections of mercury and of intravenous injections of salvarsan In 1910 information regarding the mode of preparation and chemical constitution of a new arsenical—tryparsamide—was published by Jacobs and Heidelberg, of the Rockefeller Institute; and about the same time Pearce and Brown gave an account of its biological behaviour and therapeutic action on animals experimentally infected with trypanosomes. During the last six years this drug has been used extensively in the treatment of human trypanosomiasis—a disease which in many respects is closely allied to syphilis—with very remarkable results. In a recent review (Yorke, 1925) the published results have been collected and subjected to critical analysis, and it is now definitely established that not only does tryparsamide produce immediate peripheral sterilisation of the blood both in early and in very advanced cases, but that it exerts a profound influence on the meningeal reactions. In short, this drug possesses the unique power of benefiting, and apparently curing, a not insignificant proportion of cases in the second stage of sleeping sickness with altered cerebro-spinal fluid. Of recent years the drug has been employed, particularly in America, with considerable success in the treatment of general paralysis, and much is to be hoped from experimental work along these lines

## NON SPECIFIC TREATMENT.

It is, however, with the second line of attack—the non-specific therapy—that we are concerned on the present occasion Gerstmann (1925), in his excellent monograph on this subject, shows that the historical development of the non-specific treatment of general paralysis dates back to very early times, he records that Hippocrates and Galen knew that febrile disturbances might exert a curative effect on the course of psychosis, that Boerhaave and Sydenham were familiar with the curative influence of intercurrent fevers on mental disorders, and that Reuss in 1786 had observed the cure of mania through small pox. The literature of the middle and latter portions of the nineteenth century contains numerous references to the improvement produced in psychoses by intercurrent febrile disturbances, such as typhoid, typhus, intermittent fever, cholera, variola, erysipelas, scarlatina, pneumonia, chronic suppuration, and abscesses.

These observations led gradually to the adoption of various procedures devised with the object of producing suppuration or fever; these consisted essentially of the injection of various substances which can be grouped into three classes: (1) substances not derived from micro-organisms—i e, sodium nucleinate, phlogetan, albumose, peptone, and milk, (2) substances derived from micro-organisms—i e, tuberculin, polyvalent typhoid, and staphylococcus vaccines; and (3) the living micro-organisms of infectious diseases. According to Wagner-Jauregg, who has devoted many years to the study of the subject, the weakest action is obtained from the substances of non bacterial origin, a stronger action from those of bacterial origin, and the best action from the actual infective processes themselves. It was considerations of this nature which led Wagner-Jauregg in 1917 to attempt the treatment of general paralysis with tertian malaria.

### *Technique.*

Of the three species of malaria parasites, undoubtedly the one to be used is that of simple tertian malaria (*Plasmodium vivax*); malignant tertian malaria is extremely dangerous; in quartan malaria the febrile attacks occur only every fourth day, and it has been found for this and other reasons less satisfactory than *P vivax*. Malaria infection can be induced in either of two ways: (1) by the inoculation of infective blood from a patient suffering from malaria, and (2) by allowing infective anopheline mosquitoes to bite. In practice the most usual method is the former The blood—1 or 2 c.cm.—can be injected either subcutaneously, intramuscularly, or intravenously, very occasionally subcutaneous or intramuscular inoculation for some unknown reason fails to infect, but in our experience intravenous injection is practically invariably successful. The arm-to-arm method of infection presents no difficulty in asylums and other institutions where large numbers of patients are available for treatment, but in the treatment of isolated cases it presents the practical difficulty that if the infected blood has to be obtained from a distance the malaria parasites which it contains may be dead before they are inoculated. Various procedures have been advocated for keeping malarial blood alive, but the most satisfactory is undoubtedly maintaining the blood to which a few drops of 50 per cent. glucose solution is added at low temperature, preferably on ice. If this is done the blood will remain infective for many hours.

After an incubation period varying from 8–22 days (usually 8–15 days) the patient develops fever and the malarial attacks commence. The febrile disturbances usually last about 8–12 hours and occur typically every other day; this is the typical simple tertian fever Not infrequently, however, there may be a daily rise of temperature, the curve being of the quotidian type; or the fever may commence as tertian and then become quotidian or vice versa. Whether the fever is tertian or quotidian has nothing to do with the strain of parasites used, but is dependent upon the reaction of the host.

Experience has shown that it is desirable to allow the patient to have from 8–12 febrile paroxysms Reaching a decision when to stop the malaria is the chief cause of anxiety to the practitioner; if the febrile attacks be stopped prematurely no good may result, and if they be allowed to continue too long the patient's life may be sacrificed. As a general rule, there should be no medicinal interference with the patient during the malaria. If the fever reaches alarmingly high levels (105° F or more) it can be controlled by sponging; it is of the utmost importance to bear in mind that it is impossible to control the fever by the administration of small doses of quinine; the fever can at once be stopped by quinine, but it cannot be controlled and kept within moderate bounds by the use of fractional doses of this drug. Even such a small dose as 5 gr may stop the fever, and this can only be regarded as a disastrous procedure, because not only is the treatment stopped prematurely and the chance of benefiting the nervous disease thereby nullified, but, as a rule, the patient cannot again be infected for some considerable period.

When the patient has had the requisite number of malarial paroxysms, or it has been determined for other reasons to stop the malaria, 30 gr of quinine in solution should be given daily for three consecutive days; no further treatment is necessary and in the vast majority of cases the malaria is definitely cured; very rarely after an interval of one or more months a malarial relapse occurs, but this can be dealt with in a similar manner by the three days' course of quinine.

### *Indications and Results*

In considering the suitability of a case to undergo the malaria treatment, attention must naturally be paid to the somatic condition of the patient and to the age, stage, and form of the disease As Gerstmann points out, the chief concomitant of syphilis of the central nervous system is disease of the circulatory system, particularly of the aorta. Frisch (1923) has shown that of 115 cases of nervous syphilis 30 per cent. had aortic disease and that this was present in 29 per cent of paralytics; Löwenberg (1924) found post-mortem changes in the aorta of 113 (33 per cent.) of 341 cases of general paralysis. Notwithstanding the frequency of aortitis in general paralysis, the condition is, however, as a rule not severe and rarely a cause of death; only nine of Löwenberg's 113 cases in which the aorta was affected exhibited aneurysms and only one died of the condition. The presence of aortitis is consequently not a contra-indication to the malaria treatment; but severe aortitis with aneurysmal dilatation and myocardial degeneration are undoubtedly contra-indications, as is also gross obesity, and the treatment in such cases may lead to sudden death. Such considerations in a disease like general paralysis in which the prognosis is otherwise hopeless do not appear to have much importance, and one can, I think, act on the general rule that all cases should be treated except those who are very advanced and in a feeble state of nutrition and bodily physique, and those in whom there is serious organic lesion with pronounced disturbance of function.

By far the most extensive records of the malaria treatment of general paralysis hitherto published are those from the Vienna Clinic, where the work was inaugurated as long ago as 1917 by Prof. Wagner-Jauregg. Gerstmann in his recent monograph gives the results in so far as they concern patients treated between 1917 and 1922. He observes that over 1000 cases of general paralysis have up to the end of 1924 been treated by this method, but that in dealing with a disease like general paralysis it is preferable to limit one's statistics to the 400 patients treated previous to 1923, so that only cases who had been observed for at least two years after treatment should be considered. In Table I. I have summarised the information given by Gerstmann regarding the results obtained in these patients.

TABLE I.—*Showing Results of Malaria Treatment in 400 General Paralytics at Vienna Compiled from Information Supplied by Gerstmann (1925).*

| Date treated. | Total cases. | Complete remission. | Partial remission. | Slight change, no change, or dead. |
|---|---|---|---|---|
| 1917 .. .. | 9 | 4 | 2 | 3 |
| 1919–1920 .. | 25 | 8 | 3 | 14 |
| 1920–1921 .. | 116 | 38 | 14 | 64 |
| 1921–1922 .. | 250 | 83 | 40 | 127 |
| Total .. | 400 | 133 (33 %) | 59 (15 %) | 208 (52 %) |

It thus appears that one-third of the 400 Vienna cases which have been under observation for periods varying from two to seven and a half years after treatment have remained in a state of complete clinical remission.

The data available from this country is much less complete. The Whittingham Mental Hospital was the first institution in England to examine the treatment, and at the request of Dr. R. M. Clark, the medical superintendent, a number of his patients were infected with malaria at the Liverpool School of Tropical Medicine in July, 1922, and from these the strain was carried on at the asylum by direct inoculation from one patient to another. Shortly afterwards patients were infected at the Winwick, Rainhill, Belfast, and Sheffield mental hospitals. I have been able to accumulate the broad results obtained at these institutions, partly from papers published by the medical officers in charge of the patients and partly from information kindly supplied by the courtesy of the medical superintendents; this information is summarised in Table II.

These results, although less valuable than those from the Vienna Clinic, are nevertheless very encouraging. They naturally do not carry the weight of the Vienna series, as the treatment is of much more recent date, and consequently the post-treatment observation period is of necessity much shorter. However, the fact that of 299 patients 70 (23·4 per [illegible] vered sufficiently to be discharged from the asylums is striking testimony to the value of the treatment, when it is borne in mind that all the cases were asylum patients and that from none of these institutions had a case of general paralysis previously been discharged.

TABLE II.—*Showing Results of Malaria Treatment of General Paralytics in Five British Mental Hospitals.*

| Mental hospital. | Total cases treated. | Dis-charged. | Greatly improved. | Slight improvement or no change. | Dead. |
|---|---|---|---|---|---|
| Winwick* .. | 53 | 7 (13·2 %) | 9 | 22 | 15 |
| Belfast† .. .. | 72 | 24 (33·3 %) | 6 | 25 | 17 |
| Rainhill† .. | 74 | 14 (19 %) | 8 | 26 | 26 |
| Sheffield† .. | 53 | 18 (34 %) | 21 S.I. | 7 N.C. | 7 |
| Whittingham‡ | 47 | 7 (15 %) | — | 33 S.I. or N.C. | 7 |
| Total .. | 299 | 70 (23·4 %) | — | | — |

* Data published by Davidson (1925).
† Information kindly supplied by the medical superintendents—viz., Dr. Graham, Dr. Reeve, and Dr. Vincent.
‡ Data published by Grant and Silverston (1924).
S.I. = Some improvement. N.C. = No change.

The larger proportion of apparent cures recorded by Gerstmann is doubtless due to the fact that the Vienna patients were pre-asylum cases and consequently less advanced at the time of treatment; this is borne out by the results obtained in Liverpool during the last three and a half years among pre-asylum cases where apparently complete remissions have been obtained in over a third of the patients. Analysis of the information supplied by Gerstmann indicates that remarkably few of those who exhibited complete remissions relapsed, and this agrees with our experience in the treatment of pre-asylum cases and also with the fact that very few of the patients discharged from the British asylums have so far had to be readmitted.

### *Can the Result of Treatment be Forecast?*

The question whether it is possible in any particular patient to forecast the result of treatment is obviously one of great practical importance. Any of the following results may be obtained: (1) a remission so complete and lasting that the patient is apparently cured; (2) partial mental remission accompanied by so great a somatic improvement that the patient is physically apparently normal; (3) partial mental and physical improvement; (4) no change mentally, but some physical improvement; (5) the condition remains in statu quo; (6) death.

In a disease like general paralysis where the mental changes are pronounced, the only result which can be regarded as really satisfactory is that in which the remission is so complete that the patient regains his former mental and physical powers and is enabled to return to his occupation and once more become a reasonable and useful member of society. As the statistics which I have quoted show, this most desirable result is obtained in from 23 to 33 per cent. of cases. It is upon these results that the treatment is justifiable and, pending the discovery of something better, to be advocated at the present time.

Unfortunately, in many cases an intermediate result is obtained; the patient is neither killed nor cured, nor is the condition left unchanged to proceed on its natural course to a fatal termination. In these the course of the disease appears to be arrested, the patients improve physically to a truly remarkable extent, they become cleanly in their habits—as one medical officer of an asylum put it, "instead of having to change the bed linen eight or ten times a day once suffices." They regain to some extent their mentality, but this is all; they cannot return to work and are no longer useful members of society. Regarded from the purely utilitarian point of view this can only be described as a disastrous result, and from the same point of view the treatment cannot be justified. If, however, we regard the arresting of pathological processes and the prolongation of human life as one of the objects of medical science, then we are compelled to conclude that even results of this category justify the treatment.

Beyond the obvious generalisation that the earlier the patient comes under treatment, the more likely is the result to be entirely satisfactory, it seems at present impossible to forecast the result in any particular case. Gerstmann, writing on the 1000 cases treated at the Vienna Clinic, states that "good remissions are to be expected in the so-called early cases, in maniacal cases, in cases of simple dementia, in cases characterised by seizures, and in tabetic cases; whilst poorer results are obtained in galloping cases, in advanced cases, in infantile-juvenile cases, and in senile cases."

It should be noted that the complete remission may be sudden and dramatic and may occur quite early, actually during the malarial attacks, or it may be slow and progressive and the full result may not be obtained until the lapse of several months after the treatment.

Finally, it cannot be ignored that even in the earliest and strongest patients the treatment is attended with a certain risk to life. This, however, is very slight in the average early case, provided the person who is in charge has the requisite knowledge of malaria, but in the hands of the inexperienced the malaria treatment is undoubtedly a two-edged sword; on the one hand, the physician may become unduly alarmed at the severity of the malarial manifestations and attempt prematurely to modify or even cut short the attacks by the administration of small doses of quinine, and thereby not only nullify the effects of the treatment but prevent its repetition for a considerable period, or, on the other hand, he may so delay interfering that the patient is killed by the malaria.

### *Disappearance of Pathological Reactions.*

It is now definitely established that the pathological reactions of the serum and spinal fluid disappear completely in certain cases after malaria treatment. Gerstmann has collected very considerable data on this subject from the Vienna Clinic. As a rule, it is the inflammatory reactions—lymphocytosis and excess of globulin—which tend to subside first; whereas the non-inflammatory changes—Wassermann and Goldsol reactions—disappear much more slowly. Gerstmann observes, however, that the changes in these reactions appear at first to be quite independent of the clinical manifestations. Cases are met with in which there is complete clinical remission with little or no alteration of the serum and spinal fluid reactions, and, on the contrary, in other cases there may be no clinical change but very great improvement in the serum and spinal reactions. Apparently, from the point of view of prognosis much more importance is to be attached to the clinical manifestations than to alterations in the fluid reactions. Cases in which there is complete clinical remission may exhibit unchanged fluid reactions for prolonged periods, or these may slowly tend to become normal; whereas in those who exhibit no clinical remission, but markedly improved fluid reactions, these, as a rule, generally revert sooner or later to their previous pathological condition.

There is now available a considerable mass of information regarding the condition of the brain in general paralytics, who have died during, or at various intervals after, malaria treatment. Lewis, Hubbard, and Dyar (1924) carried out an exhaustive examination of the brains of four cases who had died after malaria treatment and failed to find spirochætes in two of them, and only comparatively few were discovered in the others; they remark upon the greatly diminished perivascular infiltration; Jossman and Steenaerts (1924) were unable to find spirochætes in the brains of eight similar cases. Sträussler and Koskinas (1923) reported upon the brains of three general paralytics, who had shown complete remission as the result of malaria treatment and had later died from intercurrent disease; the pathological changes discovered were so slight that the authors state it would have been almost impossible, without the clinical history, to have made a diagnosis of general paralysis. Gerstmann gives information regarding the case of a general paralytic who died as the result of an abdominal operation two and a half years after malaria treatment, and who in the interval had been perfectly well and able to work; surprisingly few pathological changes were found; the inflammatory changes were particularly scanty and consisted of sparse lymphocytes and exceptional plasma cells on occasional precapillary vessels; recent glia proliferation was completely absent, and the meninges showed only here and there slight lymphocyte infiltrations. Somewhat similar cases have recently been recorded by Löwenberg and by Steiner.

It is interesting to compare these observations with those of Sträussler and Koskinas on four patients who died during the attacks of malaria, and on 24 who died at the end of the malaria or shortly afterwards. In three of the four who died during the malaria attacks, the inflammatory and proliferative changes were present in a most striking degree and represented an exaggeration of what is usually found in general paralysis; in 15 of the 24 who died immediately, or shortly, after completion of the malaria treatment, the ordinary appearances typical of general paralysis were seen, but in the remaining nine there was evidence of a definite retrogression of the pathological processes. As the result of these observations Sträussler and Koskinas believe that the first effect of malaria infection on general paralysis is an acute increase in the infiltration and proliferative processes in the vessels and glia, and that this exacerbation of the inflammatory reactions is a forerunner of the following subsidence and is an indication of the tissue warfare against the syphilitic virus. In this connexion it should be noted that during the malarial attacks there is often a transient increase in the clinical manifestations of the disease and in the inflammatory changes in the cerebro-spinal fluid.

## NEW OBSERVATIONS ON MALARIA.

I should like now to refer briefly to the other side of this subject. When Dr. Clarke, of Whittingham, first asked us to infect for him a number of cases of general paralysis, I had very little belief that it would do any good, but it at once occurred to me that as the alienists wished to call in the aid of a tropical disease to assist in the treatment of a mental disease, it was only right and proper that those whose interest lay in exotic diseases should seize the opportunity, which the occasion presented, of making a number of much desired observations on malaria. During the past three and a half years Dr. Macfie and I have devoted considerable time to this aspect of the subject and a number of very interesting facts—some of them, I think, of fundamental importance—have come to light.

### *Cure of Induced Malaria.*

The first question which at once aroused the interest of those concerned with tropical diseases was the ease with which the induced malaria could be cured in the general paralytics. Wagner-Jauregg drew attention to this fact in his original paper; he pointed out that two or three weeks' treatment with moderate doses of quinine was apparently sufficient to cure the malaria and that relapses were exceedingly rare. Wagner-Jauregg believed this to be due to the fact that passage of the malaria parasites from patient to patient, instead of from mosquito to patient, as always happens in Nature, had in some manner modified the virulence of the parasite and rendered it more susceptible to quinine.

In order to obtain information on this point and on a number of others, it soon became obvious that we should have to infect general paralytics by Nature's method—i.e., by the bite of infective mosquitoes—instead of by direct inoculation of infected blood from another patient. In all, we have infected about 50 general paralytics with malaria by the bite of infective mosquitoes, and the observations on malaria which I am about to summarise were made on these cases which are, of course, strictly comparable with the infections which occur in Nature.

Even up to the present time a number of authors, more particularly the French, still adhere to the view that there is only a single species of malaria parasite found in man; evidence was, however, adduced during this work which in our opinion renders the unicity hypothesis of the malaria parasites of man untenable.

The incubation period of simple tertian malaria in man was shown to vary considerably, the first rise of temperature occurring in from 9 to 22 days after the bites of infective mosquitoes and parasites appeared in the peripheral blood for the first time in from 13 to 21 days. Another interesting observation was that although the first parasites to appear in the peripheral blood were almost invariably trophozoites, in all cases gametocytes (forms which are capable of infecting mosquitoes) made their appearance two or three days later.

### *Action of Quinine.*

Of much greater practical interest, however, are the observations which we have been able to make regarding the action of quinine in the cases of mosquito-induced malaria. Our inquiry followed two directions, firstly, to ascertain whether quinine given prophylactically prevented the development of malaria; and secondly, to examine the therapeutic action of the drug and determine whether the mosquito-induced malaria was as easily cured by a short course of the drug as are the inoculated cases, or whether they subsequently relapsed with the same regularity as did the war cases and the majority of cases in tropical practice.

Numerous observations showed that quinine has no true prophylactic action in malaria, the administration of such doses as 10 gr. in solution daily for five days before, the day of, and for eight days after the bite of infective mosquitoes failed to prevent the development of malaria, the patients developing fever and showing parasites in the blood in about the usual time; similar results were obtained in cases where 30 gr. of the drug in solution were given on the day of feeding infective mosquitoes and on each of the two following days. These experiments showed conclusively that quinine has no action on the sporozoites (infective germs) injected by the mosquito, and consequently that the drug has no true prophylactive action. When, however, the daily dose of quinine is continued for ten or more days after the meal of infective mosquitoes, the infection does not develop.

Therapeutic observations showed that the mosquito-induced malaria resembled the inoculated malaria in being remarkably susceptible to treatment, a short course of quinine, gr. 30 for three consecutive days being sufficient definitely to cure the malaria in 43 per cent. of cases; in the remaining 57 per cent. a relapse occurred for the most part between four and 11 months later, but in the great majority of the relapses the parasites and fever either disappeared spontaneously or as the result of only one more three-day course of quinine. The broad fact thus emerges that the administration of moderate doses of quinine for only a few days has in these cases sufficed either definitely to cure the malaria, or at least to control it for a period of 15 to 21 months.

These results are in striking contrast to those obtained in the treatment of malaria during the war and in ordinary tropical practice. Observations on over 2000 cases of malaria at the Liverpool School of Tropical Medicine during the war showed that, whatever the treatment administered, the vast majority relapsed within a month of its cessation. The difference cannot be explained on the obvious hypothesis that the cases of induced malaria were syphilitics, [illegible] of them were non-syphilitic cases of dementia [illegible] encephalitis, and disseminated sclerosis, and [illegible]onded to quinine treatment in the same way.

### *Factors Influencing Relapses.*

The question now arises what is it that determines whether, or when, a relapse will occur? An exhaustive examination of the factors which might influence the occurrence of relapses showed clearly: (1) That provided a certain minimal dose (20–30 gr.) of quinine was given for two or three days, the amount of the drug administered exercises no influence. (2) That the period of the year when cases are infected or treated is immaterial. (3) That the particular strain of *Plasmodium vivax* with which the patient is infected has likewise no effect. (4) That the factor which does govern the relapse question is the patient himself.

In records relating to therapy, so much attention is usually paid to questions of dosage and methods of administration of drugs, and to speculations regarding differences in virulence of strains of parasites that this all-important factor—viz., the reaction of the patient—is frequently overlooked, and failure to take it into account gives rise to incorrect interpretation and deductions. Now in what respect did these experimental cases, which were so readily controlled by quinine, differ from the war cases and those one usually encounters in tropical practice? The former were at the time of treatment all primary infections, whereas the latter were old-standing relapse cases; and this, I believe, is the true explanation of the difference in their reaction to therapy.

### *Mechanism of Cure in Malaria.*

This brings us to a consideration of the mechanism whereby a cure is obtained in malaria. As a result of much work on this subject Macfie and I advanced the following hypothesis. Quinine given to a patient whose blood contains numerous malaria parasites invariably destroys directly, or more probably indirectly, large numbers, but not all, of the parasites, thus setting free a considerable quantity of soluble antigen. The antigen provokes by stimulation of the host's tissues the formation of immune body. The immune body, if present in sufficient amount, destroys the remaining parasites, thus resulting in sterilisation of the infection and in cure of the patient.

As will be seen, this hypothesis embodies two postulates; firstly, that no form of quinine therapy ever destroys all the malaria parasites in the human body; and secondly, that the tissues of the host are able, in response to antigen stimulus, to produce a sufficient quantity of immune body. We have been able to accumulate a considerable mass of evidence indicating the correctness of these postulates; this has been considered elsewhere (Yorke and Macfie, 1924, and Yorke, 1925), and I need not deal with it here.

Of late years evidence has been forthcoming that a number of drugs, which are of the utmost value in the treatment of specific diseases, have themselves little or no action on the parasites which produce the diseases. For example, atoxyl is known to be of the utmost use in the treatment of sleeping sickness and quickly causes the parasites to disappear from the blood of an infected man or animal, yet, if mixed with the parasites in a test-tube, the drug has no action on them; if, however, atoxyl is treated with fresh extract of liver, it speedily becomes parasiticidal (Levaditi). Again, it has long been known that fresh human serum will cure mice infected with sleeping sickness, whereas it has no action on the parasites in the test-tube; the explanation is that the serum reacts with the reticulo-endothelial system of the mouse and the product is parasiticidal; Rosenthal and Freund have shown that if the reticulo-endothelial system of the mouse be put out of action by splenectomy and other measures, then the injection of human serum is useless. Finally, if quinine be incubated for some hours with malarial parasites the parasites are not killed, because the mixture when injected into a patient produces infection.

Although, then, the experimental proof is still lacking, it seems highly probable that quinine, when introduced into the human body, is in some way changed into an active substance, and that certain body-cells play an important part in causing the disappearance of malaria parasites from the blood which follows quinine administration. This process does not, however, result in sterilisation of the infection; most of the parasites are destroyed, but some remain and they exist in the human body for long periods without increasing sufficiently in number to appear in the peripheral blood. They are held in check by immune body and a state of balance or tolerance results. This state of balance ends in one of two ways: either the infection dies out and a cure is obtained, or it re-establishes itself and a relapse occurs; which alternative results is dependent entirely on the host and any factor which tends to lessen the capacity of the host to form immune-body assists in the production of a relapse. What these factors are we can only speculate, but there may well be deficient nutrition, ill-health due to extraneous causes, exhaustion and strain, repeated infection, and lastly, and possibly not least, over-dosing with quinine.

### *Evils of Over-Administration of Quinine.*

Having regard to the fact that the action of many drugs is indirect—i.e., they must react with the body-cells before they are capable of destroying the parasites—it is at once apparent that there may be very definite ill-results from the over-administration of the drug. Experience in the war showed clearly the impossibility of sterilising a malarial infection merely by raising the dose of the drug; such enormous daily doses as 90 or 120 gr.—doses which border on the toxic—were futile, as also were such courses as 45 gr. daily for two months and 30 gr. daily for four months. Within a week or two of the cessation of treatment a relapse occurred, and frequently, as a matter of fact, even whilst the patient was taking these large doses of quinine. Furthermore, there is evidence that no good results from the administration of quinine when the blood is negative; and I have already referred to the experimental work conducted by Macfie and myself which showed that quinine has no true prophylactic action in that even such large doses as 30 gr. for three days fail to destroy the sporozoites which the mosquito injects.

Turning now from this brief summary of certain of the limitations of quinine, let us consider for a moment the manner in which excessive quininisation may be detrimental. Apart altogether from the fact that prolonged administration, or very large doses, of quinine upset the digestion and nervous system of many persons and thereby lessen the general resistance, there is possibly a much more directly pernicious effect of such a procedure. Let me refer once more to the fact that human serum cures mice infected with sleeping sickness and recall that this is due to the formation of a parasiticidal substance produced by the interaction of the serum and the reticulo-endothelium of the mouse. Now it has been shown by Rosenthal and Freund (1923 and 1924) that repeated injection of human serum into mice inhibits the protective action of a dose of the serum administered later, after the mouse has been infected with trypanosomes; this has been proved to be the result of an exhaustion phenomenon, the repeated doses of serum wearing down the reticulo-endothelial system, so that it finally ceases to react with the serum to produce the parasiticidal substance.

Is it not likewise possible that in the treatment of malaria also there may be a danger from excessive doses, or from the prolonged administration, of quinine, of exhausting the body-cells which react with the drug to form the parasiticidal substance; and may not excessive quininisation be one of the factors which rendered the war cases and the majority of cases of malaria one encounters in private practice so difficult to cure?

### CONCLUSION.

In conclusion, may I express the hope that I have succeeded in showing that this interesting reaction of one disease upon another has thus a two-fold effect in that "it blesseth him that gives and him that takes." A not inconsiderable proportion of the paretics are restored to health, and those who suffer from malaria will doubtless in due course benefit from the advance of knowledge which the remarkable influence of this infection on the nervous disease alone has made possible.

### REFERENCES.

Davidson, T. W.: Brit. Med. Jour., 1925, i., 452.
Frisch, F.: Klin. Wochenschr., 1923, Nr. 30.
Gerstmann, J.: Die Malariabehandlung der Progressiven Paralyse, Wien, 1925.
Graham, N. B.. Jour. Mental Science, July, 1925.
Grant, A. R., and Silverston, J. D.: Ibid., January, 1924.
Levaditi, C., and Nicolau, S.: C.R. Acad. Sci., 1923, clxxvi., 1180
Levaditi, C., and Yamanouchi, T.: C.R. Soc. Biol., 1908, lxv., 23.
Lewis, N. D. C., Hubbard, L. D., and Dyar, E. G.: Amer. Jour. Psychiatry, 1924, iv., 161.
Löwenberg: Klin. Wochenschr., 1924, p. 531.
Straussler, E., and Koskinas, G.: Wien. med. Wochenschr., 1923, Nr. 17; Zeitschr. f. d. ges. Neurol. u. Psych., 1925.
Wagner-Jauregg, J.: Psychiatr.-neurolg. Wochenschr., 1918–19, xx., 132 and 251; Wien. med. Wochenschr., 1921, Nrs. 23 and 27; Jour. Nervous and Mental Dis., 1922, lv., 300.
Yorke, W.: Trop. Dis. Bull., 1925, xxii., 507; Trans. Roy. Soc. Trop. Med. and Hyg., 1925, xix., 108.
Yorke, W., and Macfie, J. W. S.: Ibid., 1924, xviii., 13.

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# A NOTE ON FIFTEEN CASES OF OPERABLE CARCINOMA OF THE BREAST TREATED BY RADIUM AND X RAYS.*

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IT is not suggested in this paper that radiation should be preferred to operation in operable cases of breast cancer; radiation treatment is still too much in the experimental stage in its application to malignant disease, and its results are still too little known for this attitude to be adopted. At the same time radiation, which has sometimes led to the complete disappearance of inoperable growths and recurrences, should give very good results in operable cases, and radiologists therefore ought to study and discuss the problems of the treatment of operable breast cancer, for they never know when an operable case may be referred to them for some special reason.

A vast amount of attention, time, and money is devoted in every radiotherapeutical clinic to the treatment of inoperable primary or recurrent malignant disease, for which for the most part palliation is the only reasonable aim; but when an operable case is referred there is as yet no unanimity as to the best method of dealing with such a case, nor is there accurate knowledge as to the results of the different X ray and radium techniques which may be employed. And yet here it is not the degree of palliation, but *cure* (as far as the word can be used in speaking of malignant disease) which hangs in the balance for the patient. The responsibility is therefore great on the radiologist in dealing with such cases, for clinical cure should result in a high proportion—in nearly every case indeed, unless there is already distant metastasis, or some as yet unknown biochemical factor reducing the natural immunity, as there appears to be in patients who develop cancer during pregnancy.

In the following series every patient either refused operation, or else age, chronic bronchitis, heart disease, or glycosuria made operation inadvisable.

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The interim results suggest that such patients should be more freely offered the alternative of radiation treatment than they are at present; at least they should not be told that there is no alternative to operation.

### *X Ray Cases (8).*

CASE 1.—Mrs. S., aged 82. This patient had been successfully brought through a double apical pneumonia two years previously by her medical man, Dr. F. W. Rix. A mass appeared in her right breast, in the upper and outer quadrant, and she was seen by a surgeon, who advised that operation was the only course to be considered. The patient's son, however, was a medical man, and he and Dr. Rix, considering the patient's age, her history of pneumonia and chronic bronchitis, and her bad heart, consulted Sir William Willcox and the late Sir James Galloway, who both advised strongly against operation. The patient was brought to one of us (J. H. D. W.), and deep X ray treatment was given (May, 1922). The mass was hard, 6 by 8 cm. in size, adherent to the pectoral muscle. On July 11th the mass could hardly be felt. On Oct. 3rd the small soft residue was treated again. The general condition was good. In December she suddenly fell ill with broncho-pneumonia in both bases, and died after only a few days' illness. The opinion of those in medical attendance was that this terminal illness was in no way connected with the previous breast condition.

CASE 2.—Mrs. S. S., aged 55. This patient came into the Middlesex Hospital under Mr. Sampson Handley. There was a stony hard mass in the axillary tail on the left side 10 by 7 cm. in size. Treatment was given in February, 1925, and in April, by which time the mass was much smaller, and again in May. On June 24th Mr. Handley saw the patient and noted that the mass had apparently disappeared. The skin is still puckered in and adherent at the site where the mass was. The patient feels and looks in much better health than she was when first seen in February. This is a new case, but the immediate result has been very good.

CASE 3.—J. S., aged 75. This patient came with a four months' history to Mr. Handley. She refused operation, and Mr. Handley advised X rays. She had an "atrophic scirrhus, deep pucker of skin, slight underlying induration; no glands" (from Mr. Handley's note, Feb. 19th, 1919) in the lower inner quadrant of the left breast. She had attended irregularly for some time before this for low voltage X ray treatment, then had no X rays for nearly four years. In December, 1923, the residue was slightly adherent to deeper structures, and she had more X ray treatment. In November, 1924, the left axillary glands were enlarged; after treatment they were no longer palpable in January. Seen again at intervals, she remains in a satisfactory local and general state, with no more treatment. *(See notes at end.)*

CASE 4.—E. E., aged 77. She came to hospital under Mr. Handley giving a three years' history. She refused operation. She had a hard mass in the left breast adherent both to skin and muscle, with peau d'orange appearance of the lower breast; there was a hard gland in the left axilla. She had high voltage treatments in July and September, 1924, and January, 1925. The residue appears to be quiescent.

CASE 5.—Mrs. G., aged 78. This patient refused operation. The left nipple was drawn up compared with the opposite side. There was a hard localised mass 6 by 6 cm. in size, slightly adherent to the skin; no palpable glands. She was treated in June, July, September, and October, 1924, by *cross-fire, high voltage*. The residue now is hardly palpable, it is about 2 by 0·25 cm. in size. There has been no treatment since October, 1924, the patient reporting every three months for observation.

CASE 6.—Mrs. D., aged 71. She reported with a large hard mass 9 by 8 cm. in size in the right breast, the skin was adherent, and nipple deviated; no glands were palpable. Owing to age and chronic bronchitis, operation was inadvisable. After two deep X ray treatments in September and October, 1922, the mass was reduced to the size of 6 by 5 cm. In December, her daughter wrote to say she was in bed with a "chill." She never reported again, in spite of repeated letters. She died nearly two years and a half after last being seen, in February, 1925; the breast had become ulcerated. Treatment in this case was incomplete, the patient was debilitated, and always objected to anything being done for her; this result therefore was [illegible]usive.

[illegible] 7, Mrs. B., aged 77, and CASE 8, A. L., aged 71, [illegible] Both are improving.

Cases 9 and 10 have been treated by combined radium insertion and X ray.

CASE 9.—B. R., aged 64, had a scirrhus in the right axilla and upper outer quadrant. She refused operation. She had a preliminary X ray treatment on June 17th, 1921. Ten days after Mr. Handley inserted radium, 250 mg. (radium bromide), in five tubes for 13 hours. "The skin was involved, there was considerable infiltration of the breast, and two subcutaneous nodules." A year later, in June, 1922, "the growth was quiescent." In September there were four skin nodules, and more X ray treatment was given. Seen in March, the skin nodules had gone. Twice since then small skin nodules have appeared, and have been no longer palpable after X ray treatment. Her general condition remains good, and there are no signs of any extension beyond the right axillary fold. For four years the disease has been kept well under control.

CASE 10.—R. P., aged 48. Seen by Mr. Handley in March, 1924. There was a "lump causing deviation and retraction of the left nipple, and a hard enlarged gland in the left axilla. Diagnosis "atrophic carcinoma." Mr. G. Gordon-Taylor buried radium round the growth by the "*encirclement method*" Mr. Handley has described, five 50 mg. Br, for 18 hours, on May 17th, 1924. The axilla was treated by deep X rays in June, and a small gland appearing in the opposite axilla also had X ray treatment; the left breast and supraclavicular and left scapular areas had medium voltage X ray applications in July and August. On Sept. 30th Mr. Gordon-Taylor again buried radium round the growth and by the axilla. On Nov. 10th she was seen by Mr. Gordon-Taylor, and was "greatly improved; there was no sign of recurrence." In the last two months, however, she has developed a radium dermatitis, and is having treatment for that in the hospital at present. There is practically no sign of growth now. In both of these cases the combined use of radium insertion and X ray has been very effective. *(See notes at end.)*

The five concluding cases have been treated by radium surface applications, with radium loaned by the Medical Research Council to the Middlesex Hospital for special investigations in cancer treatment.

### *Radium Cases (5).*

CASE 11.—F. P., aged 15. In June, 1923, there was a tumour behind the nipple with extension towards the right axilla. The mass was hard, slightly fixed to the overlying skin; there was a small gland in the right axilla. The mass measured 11 by 10 cm. Operation was refused. A prolonged series of applications with ¼ g. of radium element was given, at 4 cm. distance for 33 hours, spread over six months. In March, 1924, there was practically no residue to be felt. In February, 1925, only a slight apparently fibrous thickening remained as a residue of the former tumour.

CASE 12.—H. C., aged 65. This patient had a lump about the size of a five-shilling piece in her left breast, with slight retraction of the nipple. The skin was slightly adherent, and there was a gland in the left axilla. She refused operation, and was treated with 750 mg. of radium element for five hours in September, and again in October, 1921. Later on 17 applications of ¼ g. were given at three-weekly intervals, and radium treatment was also given to the left supraclavicular glands which had enlarged. In December, 1923, the tumour was only just palpable, and the supraclavicular glands were much smaller. Another treatment was given to the left breast in March, 1923. In the summer of 1923 the patient had a hemiplegia, but since her recovery from this she has come repeatedly for examination. In April, 1924, there was no definite tumour to be felt, but a diffuse thickening in the lower outer quadrant; the nipple was much retracted. Radium telangiectases were marked over the most prominent part of the breast. This patient has been followed for nearly four years, with good result.

(Any similar case would now be treated by radium cross-firing from a distance of 3–5 cm. at least, not by radium closely approximated to the skin, as in all the earlier applications in this case. Thereby the telangiectases would probably be avoided, and the base of the growth be more efficiently radiated.)

CASE 13.—M. J. K., aged 66. This patient had a hard mass in the upper and outer quadrant of the right breast; the skin was adherent. There was an enlarged gland in the right axilla. Operation, though possible, was considered inadvisable owing to the condition of the patient's heart, and she had glycosuria. Treatment began in April, 1924, by the ¼ g. of radium element for eight hours at 2 cm. distance; this was repeated in May, and again in September for 14 hours. In May, a hard skin nodule 2 cm. in diameter was found in the mid-axillary line just above the iliac crest. This nodule had radium application. On Sept. 10th neither the original tumour nor the nodule was palpable.

CASE 14.—S. M., aged 48. This patient noticed a small lump to the inner side of the nipple of the left breast in 1920. By May, 1924, it had enlarged and ulcerated through the skin. The patient had refused operation.

The nipple was retracted. The ulcerated mass was fixed to the chest wall. There were two small superficial nodules just above and to the inner side of the nipple. There was a hard gland in the left axilla. Half a gramme of radium element was applied on a dental wax applicator 2 cm. thick over the area, for a ten-hour dose divided over two days at intervals of two months four times. The axillary gland was also treated. By November the ulcer had completely healed, the growth was much smaller, and the skin nodules had disappeared. In February, 1925, 180 mg. of radium element was applied to the breast at 1 cm. distance for six hours; on this date the site of the original tumour could only be made out by very careful palpation, and the axillary gland could hardly be detected. Though the patient had refused an operation previously, strictly speaking this case was inoperable when first seen by us, unless a merely palliative operation had been carried out with post-operative radiation.

CASE 15.—M. H., aged 73. On March 4th, 1924, there was a hard mass measuring 4·5 cm. in diameter behind the nipple, fixed to the skin, but not to the chest wall. There were several skin nodules between the growth and the axilla. 400 mg. of radium were applied at a distance of 3 cm. for 18 hours in March and April, 1924, and treatment was also given in July and September, and in March, 1925. In September, 1924, the growth had become softer and smaller, and the skin nodules had disappeared. On Dec. 10th the growth was flattened, and its limits were not easy to define; a small gland was still palpable in the left axilla. On March 6th, 1925, the condition of the breast was very satisfactory, but she was found to have developed an abdominal swelling, which was diagnosed by Mr. Victor Bonney as metastatic carcinoma of the ovary following breast carcinoma.

All these five radium cases have done well locally, within the limits of the time they have been under observation. In each case there have been supplementary medium voltage X ray applications to the epigastrium, lateral chest wall and axilla, supraclavicular triangles, opposite axilla and breast.

Summarising the total 15 cases there have been two deaths, one due to an intercurrent disease, and one of the disease over two years after treatment had been discontinued; one case has an abdominal metastasis. Three are new cases, but in one of these there is now no sign of disease. One is having treatment for a radium dermatitis, the disease appearing arrested. The remaining eight have been in good general and local condition for some time. The periods of observation are too short for conclusions to be drawn as to technique or results, but the subject is brought forward because it should be discussed, and the results so far suggest that the alternative of radiation treatment can be safely offered to patients who refuse operation, or in whom operation is inadvisable.

Comparing the radium with the deep X ray cases, there is no notable difference so far in the results. The quantity of radium necessary for the thorough treatment of breast cases is so large that only a few cases can be treated with radium in any centres at present. Further supplies of radium are necessary if this country is to explore fully this method of treatment, especially as large quantities of radium, at a distance from the body, must be used in cases in whom all surgical interference is impossible, if the best results from surface radium are to be obtained.

In conclusion one point should be referred to. This is the diagnosis, in cases where there is no histological confirmation. Several writers lately have shown that a positive expert surgical diagnosis of breast cancer is correct in about 91 per cent. of cases. On this proportion one (or at most two) of this series may not have malignant disease. But practically every case showed at one time or other, in addition to characteristic signs in the primary growth, axillary or supraclavicular gland enlargement or skin nodules. And in this series no patients with mastitis and possibly very early carcinoma have been included; several cases of this nature have been treated so far with success.

Acknowledgments should be made to the Medical Research Council for their loan of radium, and to Mr. Gordon-Taylor, Mr. Eric Pearce Gould, and in particular to Mr. Handley (under whose care most of the patients were) for opportunities afforded and their interest in radiation therapy.

### *Notes taken on Dec. 8th, 1925.*

CASE 3, with an atrophic scirrhus, in the last two years fixed to the chest wall, who had begun treatment with low-voltage X ray applications (1918–19), has reported in the last weeks with a left-sided pleural effusion.

CASE 10.—The broad sickle-shaped area in the upper and outer part of the breast, which at first appeared to be a radium dermatitis, was just *outside* the two radium encirclements; and later the area ulcerated and was evidently a malignant invasion of the skin and underlying lymphatics. Later on the left supraclavicular glands, the opposite breast, and both pleuræ became invaded, and the patient died on Oct. 9th. The two medium-voltage X ray applications and the two radium encirclements had not been sufficient to arrest the disease in the breast.

CASE 14 had a radium dermatitis after the last treatment, but has been discharged from hospital with this now healing.

CASES 2, 4, 5, 7, 8, 9, 11, 12, 13, and 14 are well, with little or no sign of disease.

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# THE STANDARDISATION OF TUBERCULIN AND THE PRECIPITIN TEST.

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THE testing of tuberculin by methods based on the official test in use at Frankfort has been carried on in England for many years. Eagleton and Baxter (1923) used the official Frankfort method, in which varying doses of tuberculin are injected subcutaneously into different tuberculous guinea-pigs until the lethal dose is found; they added the von Pirquet and intracutaneous tests and thereby considerably improved the method.

With the methods at present available the degree of accuracy attainable is of a different order from that ordinarily obtained in the testing of diphtheria and tetanus toxins and their antitoxic sera, which lend themselves to accurate titration, but the test nevertheless distinguishes at least a "satisfactory" from a "useless" tuberculin. It is probable that an experienced worker can differentiate, on a short range of tests, between three tuberculins of values 100 per cent.—i.e., equal to standard tuberculin—60 and 30 per cent.; on a long range of tests smaller differences probably can be detected.

The standard tuberculins used in the work in England have been based upon those of Frankfort since the receipt of the first standard from Ehrlich several years before the war, and many different batches of tuberculous guinea-pigs have been used with fairly consistent results.

Dreyer and Vollum (1924) described a precipitin test and found that considerable discrepancies might exist between the results obtained by the guinea-pig method and the precipitin test. Table I. summarises these results.

TABLE I.

A = Description in Table VII. (Dreyer and Vollum, 1924).
B = Value by precipitin test (Dreyer and Vollum).
C = Value by guinea-pig test (Okell and Parish).

| A. | B. | C. |
|---|---|---|
| British 3 .. .. | 33·2 | 100 |
| „ 4 .. .. | 46·0 | 100 |
| „ 5 .. .. | 244·7 | 100 |
| American 29 .. | 131·3 | 10 |
| Belgian 30 .. | 19·8 | 5 |
| British 2 .. .. | 135·1 | 100 |
| „ 8 .. .. | 119·6 | 100 |
| „ 9 .. .. | 95·2 | 100 |
| „ 12 .. .. | 117·8 | 100 |
| „ 26 .. .. | 6·1 | 10 |
| American 27 .. | 14·8 | 10 |
| „ 28 .. | 29·6 | 20 |
| French 31.. .. | 18·3 | 10 |

It therefore became of fundamental importance to discover whether tuberculins found to be equal (within the error of the test) to standard by the official Frankfort test on guinea-pigs could vary widely in their content of the active principles of "tuberculin," the substance used for the detection of tuberculosis in man and animals. A joint investigation was therefore arranged. It was agreed that one of the workers at the Wellcome Physiological Research Laboratories should choose from materials available at the laboratories three tuberculins, and should hand them to the various workers, each of whom would know nothing of the value of the tuberculins or of results obtained by the other workers until he had made his final report.

TABLE II.

| Col. 1. | Col. 2. | Col. 3. | Col. 4. | Col. 5. | Col. 6. | Col. 7. |
|---|---|---|---|---|---|---|
| Tuberculins. | Original values (Okell and Parish). | Parish. | Cummins. | Buxton. | Dreyer and Vollum. | Okell and Miss Steed. |
| | T.B. guinea-pigs, subcutaneous, von Pirquet and intracutaneous. | | Human patients: cutaneous test. | Tuberculous cows: intradermic test. | Flocculation test. | |
| 1232 | 5–10 | About 5. | Both weak and inefficient. | Poor. | 100 | 100 |
| 1360 | 2½–5 | About 2½. | | Useless. | 59 | 50 |
| 1366 | 100 = Frankfort standard. | 100 | Thoroughly reliable; powerful tuberculin. | Full potency. | 14 | 12 |

*Col. 1.*—The original batch numbers of the tuberculins.

*Col. 2.*—These values were, prior to the present joint investigation, given by Okell and Parish as the results of many tests by the subcutaneous, intradermic, and von Pirquet methods applied on many occasions over a period of about 18 months. The values obtained by the three methods on the tuberculous guinea-pig agree fairly closely.

*Col. 7.*—Precipitin tests by Okell and Miss Steed. Vollum provided a generous supply of the precipitating serum. Okell and Miss Steed report "on precipitin test 1232 markedly better than 1360 or 1366. 1360 is definitely better than 1366." The arbitrary values given are the averages of two series of readings amongst which rather wide fluctuations occurred. These figures correspond fairly closely to those in Col. 6.

The three tuberculins were 1366, a Koch's old tuberculin made on the ordinary glycerine veal broth medium, 1360, and 1232. These two latter had been made in the ordinary way from strains of *B. tuberculosis* grown as a film on glycerine veal broth in the expectation that good tuberculin would result. When the filtrates had been concentrated and batches of the desired Koch's old tuberculin had resulted, the "tuberculin" failed to pass the ordinary animal test. Further examination by the various guinea-pig tests indicated that the "tuberculin" values of these two batches were very low—approximately 2 to 5 per cent. and 5 to 10 per cent.

In order that the various workers should use the same technique, Dreyer and Vollum arranged a full demonstration of the details of the precipitin test at Oxford. This enabled Okell, with the help of Miss G. I. Steed, to carry out three precipitin tests on the three tuberculins. These latter workers with their limited experience of this test would not attach undue importance to the accuracy of their figures obtained by the precipitin method. However, in their three tests they always placed the three tuberculins in the same order of merit (Col. 7) as Dreyer and Vollum (Col. 6, Table II.).

Cummins carried out the testing of the three tuberculins on a number of patients. He decided to test out these tuberculins in a series of dilutions as [illegible]y suggested by Dreyer and according to the [illegible]ue described by himself (1924). This same technique was used by Dreyer and Vollum in the "human cutaneous test" described in their paper. Twenty patients affected with various forms of tuberculosis, and suitable controls, were used in the investigation. An examination of the records of the local reactions led Cummins to report before he had any further details relating to the tuberculins, that "1366 is a very efficient preparation, superior in every way to 1360 and 1232. The two latter samples are indeed so poor in reaction value as to be useless and misleading for clinical purposes."

Buxton tested the three tuberculins on tuberculous cows in various dilutions by the "repeat intradermic test" (as described by himself (1925)). His conclusions are given in Col. 5 of Table II.

The results of the joint investigation are given in Table II. It will be seen that the official Frankfort or "guinea-pig" method, the intracutaneous and von Pirquet tests in guinea-pigs, the cutaneous method in human beings, and the intracutaneous test on tuberculous cows all agreed in indicating that 1366 was a satisfactory tuberculin, and that 1360 and 1232 were practically worthless, while the precipitin method suggested that if 1232 was a tuberculin of precipitin value 100, 1366 had a value of only 12 and 1360 of 50.

With reference to the precipitin method, the results of Mueller (1925) and of Laidlaw (1925) indicate that the active principle of "tuberculin" and the substances precipitable by an antiserum, are probably two distinct substances, separable by chemical methods.

### *Summary.*

1. The precipitin test does not necessarily measure the active principle of tuberculin on which its use in the various methods of diagnosis of tuberculosis depends.

2. Satisfactory agreement in precipitin unit value was obtained by two different groups of workers by the precipitin test. This test apparently measures with a considerable degree of accuracy a substance probably other than the active principle of tuberculin, and presumably the interesting precipitable substance of Mueller and Laidlaw?

3. The "tuberculin" value of tuberculins which have been standardised by the official Frankfort method cannot in all cases be deduced from the precipitin test.

4. The results obtained by subcutaneous, intracutaneous, and von Pirquet tests on guinea-pigs and by the tests on tuberculous human beings and cows were in agreement. By these three methods a tuberculin of standard strength and two others of values approximately 10 and 5 per cent. of standard were placed correctly in order of merit.

*References.*—Buxton, J. B.: Vet. Record, 1925, v., 581. Cummins, S. L.: Brit. Med. Jour., 1924, i., 187. Dreyer, G., and Vollum, R. L.: THE LANCET, 1924, ii., 1003. Eagleton, A. J., and Baxter, E. M.: Brit. Jour. Exp. Path., 1923, iv., 289. Laidlaw, P. P., and Dudley, H. W.: Ibid., 1925, iv., 197. Mueller, J. H.: Proc. Soc. Exp. Biol. and Med., 1925, xxii., 209.

# THE DIAGNOSIS AND TREATMENT OF INTRATHORACIC NEW GROWTHS.

*Opening a Discussion at the Royal Society of Medicine on Feb. 23rd.*

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A FEW years ago a discussion on intrathoracic new growths would have been of academic interest only. An uncommon condition but rarely diagnosed, at any rate until the very late stages, and when diagnosed untreatable. The condition, however, is not so rare as was supposed, and with improved methods of diagnosis many cases are now recognised which formerly would have been considered to have been cases of some other disease—usually tuberculosis. These tumours may be considered under three headings: (1) those of the mediastinum; (2) those of the pleura; (3) those of the lung. In all cases the growth may be primary or secondary, malignant or benign. In the case of secondary tumours the diagnosis is, as a rule, easy, but they are generally beyond cure. A primary growth, however, may often be successfully removed by operation, even if malignant. The benign tumours especially lend themselves to successful operation, and as these usually increase in size and eventually prove fatal, it is very important to deal with them in the early stages.

### *Tumours of the Mediastinum.*

Sarcoma is the most common primary growth, but a secondary carcinoma is frequently found. Of the *non-malignant* cases fibroma and dermoid are the least uncommon. Sometimes the tumour grows very rapidly, so that even after a few weeks the whole chest may be a mass of new growth. In the late stages, of course, the diagnosis is obvious. In the early stage the first sign is the result of pressure. Some time ago I saw a man who complained of swelling of the veins of the right side of the neck when he stooped; otherwise he was quite well. I could find no physical signs but suspected mediastinal tumour from the symptom, and X rays showed a mass in the superior mediastinum. He had a course of X ray therapy, but the tumour spread and he died seven months after the first symptom. Post mortem he was found to have an enormous sarcoma in the mediastinum involving most of the right lung and the pericardium, with secondary masses in the left lung. In this case the diagnosis was made early, and I much regret that I did not consult a surgeon.

In a second case the patient complained of swelling of most of the joints, was unable to walk, and was wheeled into the hospital as a case of rheumatism. He denied cough or any chest symptom, but as his fingers were very clubbed I suspected an intrathoracic lesion, and on examination found dullness between the scapulæ and a very obvious D'Espine sign. X rays showed a large mediastinal mass. After treatment with X rays this mass disappeared and all the joint symptoms cleared up though the clubbing remained. He kept well for about a year, when glands appeared in the groins and were found to be lymphadenomatous. In this case the growth had reached such a size that it could readily be recognised by clinical examination, before any symptoms except the arthropathy had appeared. In the first case the pressure signs came before any physical signs could be detected. In both cases, however, X rays confirmed the diagnosis. Pleural effusion usually appears early in these cases, but not as a rule until other signs have been noticed. Dyspnœa and pain are also early symptoms, but may be absent until the late stages. There is, indeed, no early sign or symptom which is constant, but one should always be on the look-out, and the slightest symptom suggesting pressure in the mediastinum should make one very suspicious. Having made the diagnosis it is important to exclude syphilis or aneurysm as the cause, and if these can be excluded I think a surgeon should be called in as soon as possible.

### *Tumours of the Pleura.*

The type most frequently seen here is endothelioma. Usually the first symptom is dyspnœa, which is found to result from a large pleural effusion. I saw a case last year in a youth of 20. He suddenly developed what was thought to be a bad cold and went to bed owing to increasing dyspnœa. Pleural effusion was found and was aspirated many times, but the fluid always re-formed rapidly and he died six months after the onset of the first symptom. In this case the diagnosis was made (and it was confirmed at the post mortem) solely on the quantity of the fluid and the rapidity with which it formed. The fluid was clear throughout in this case, but usually it becomes blood-stained sooner or later. On the other hand, I have frequently seen a blood-stained effusion which was not caused by neoplasm. It is often blood-stained in cases of tuberculosis.

### *Tumours of the Lung.*

Primary carcinoma of lung occurs in about 1 per cent. of all cases of carcinoma. It is said that tuberculosis is a predisposing cause, and certainly this disease is often present in cases of carcinoma of lung. Moreover, in 80 per cent. of cases the upper lobe is involved, so that the diagnosis may be of the greatest difficulty, especially if tubercle bacilli are present in the sputum. If a diagnosis is made early enough carcinoma of lung may be, and has been, successfully treated by operation. In order to arrive at an early diagnosis it is important to be on the look-out for neoplasm; many cases are missed because they are never suspected. Secondly, one should rid oneself of the old fallacy that the absence of tubercle bacilli in the sputum means nothing. In any case of pulmonary disease where there is sputum repeated failure to find tubercle bacilli should lead one to suspect—and very strongly—that the disease may not be one of pulmonary tuberculosis even if the signs are definite and confined to the apex of a lung. Thirdly, whenever the signs or symptoms are unusual, neoplasm should be suspected. It should not be forgotten that in some 90 per cent. of cases the disease starts in a bronchus. Bronchoscopy, therefore, is of the greatest value in the early recognition of these growths. Not only is it sometimes possible to see the growth, but a suspicious piece of the bronchial mucosa may be removed for microscopical examination. To illustrate some points in diagnosis I will give a brief account of a case of carcinoma of lung that I saw recently. A woman of 55 had been ailing for 18 months, and since influenza five months ago had been worse. She had lost 2 st. in weight, had night sweats, and a cough with purulent blood-stained sputum. She had been advised to go into a sanatorium several months before but had refused. Now, however, finding herself worse she had consented, and it was with a view to arranging sanatorium treatment that she came to me. On examination I found that the signs were confined to the left lung. In front from the clavicle to the third space crepitations were heard, the breath sounds were bronchial, and the percussion note impaired. Below this until the fifth space the breath sounds were absent and the percussion note stony dull. Now the history was quite typical of tuberculosis, but there were two facts which made the diagnosis doubtful. The first that tubercle bacilli had never been found in the sputum, and the second the signs, although at the apex, were not those usually found in tuberculosis. The patient was therefore admitted to hospital and the X rays showed a definite dense round shadow in the middle of the left lung. This mass was clearly a tumour, and it was important to decide whether it was in the lung tissue or not. Some lipiodol was injected into the trachea with the patient lying on the left side, and the X ray photograph showed the left bronchus well defined for a short distance, when it suddenly stops. It could also be seen that the lipiodol had overflowed into the normal right bronchial tree. So far the case appeared to be one of carcinoma of lung with occlusion of the bronchus.

An artificial pneumothorax was induced, and it was found that the lung collapsed around the mass, as is seen in the next X ray. Examination with the thoracoscope showed the presence of a large neoplasm in the lung tissue. Owing to the size of the growth, the length of history, and the bad general condition of the patient it was decided not to advise an operation. The patient died shortly afterwards, and at the post-mortem there was found a large carcinoma of lung with occlusion of a large bronchus, as was shown so well after the injection of the lipiodol. Just before death she developed a secondary growth of brain—not an uncommon site in these cases. I did not have a bronchoscopic examination because the diagnosis was clear without one, but had the condition been suspected a year earlier the growth would probably have been detected by the bronchoscope and she might have been saved by operation.

I have been able to do little more than touch upon my subject from the physician's point of view. Mr. J. E. H. Roberts is to speak after me, and I have left it to him to discuss the surgical methods and the chances of life they offer to the patients (see p. 468). As a physician, however, I must emphasise the fact that however dangerous an operation may be it is our duty to weigh this danger against the danger of leaving the patient alone, which in almost all of these cases is certain death. Operation cannot hope to succeed when metastases have appeared, and they start early. I should say, then, lose no time in confirming your diagnosis, and when once it is confirmed call in a surgeon and do not waste time in giving a trial to radium or any other form of treatment. Moreover, remember that non-malignant growths such as a dermoid or fibroma often prove fatal if left too long. I have laid stress on the value of X rays in diagnosis and have pointed out how the introduction of lipiodol or the induction of a pneumothorax may assist the X rays, but I have left it to Dr. Stanley Melville to describe this part of the subject in detail, and especially as regards treatment. In my experience X ray therapy is very good in cases of lymphadenoma and sarcoma and should always be used. For other forms of intrathoracic growth I have found X rays and radium therapy disappointing, but they should be tried in cases which are inoperable. When operation is possible it should be tried first. With regard to drugs, except in the case of gumma (and I have warned you that syphilis must be excluded before coming to a final diagnosis) they are of value only to alleviate symptoms.

In these cases the great function of the physician is to make an early diagnosis, and for this purpose I should say the most important factors are to suspect the unusual in every case of chest disease and not to rest satisfied with a diagnosis, however probable, until it is absolutely confirmed after a complete examination.

### CASE OF

# RUPTURE OF THE THORACIC AORTA.

By J. H. SHELDON, M.D., M.R.C.P. Lond.,

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*With Post-mortem Notes by*

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Rupture of the aorta through an atheromatous plaque, though an uncommon, is by no means a previously unknown event. As in the case here recorded, death does not as a rule follow immediately upon the rupture. The interval of a few days between the symptoms due to the primary outrush of blood and the second set of symptoms just before death, due to the spread of the hæmorrhage, is usual. In most of the recorded cases the blood in the second [illegible]tal hæmorrhage had reached the pericardial sac; for it to pass between the pleura and the chest wall as in this case would appear to be excessively rare. At any rate no record of this phenomenon has been found in the literature available.

## *Clinical History.*

T. C., a man, aged 51, was admitted to hospital on Sept. 18th, 1925. He had been in perfect health till some six months previously, doing heavy work in a corn mill till 1916, serving in France from 1916 till 1919, and working as a motor-lorry driver since. He had been receiving treatment from his private doctor for the last six months, at first for bronchitis, but latterly for symptoms of gastric origin—anorexia, especially for fats, chronic abdominal pain, and vomiting after meals. A tentative diagnosis of carcinoma of the stomach had been made, and a barium meal was given at the beginning of August, but revealed nothing abnormal. On Sept. 17th, 1925, while driving his lorry, he had a sudden attack of severe pain in the epigastrium, followed immediately by vomiting. He recovered sufficiently to drive his lorry home—a distance of eight miles—although the pain was increasing in severity and had spread from the epigastrium to the left scapula. He passed the night in great pain, and was admitted to hospital the next day.

*Condition on Admission.*—When first seen he was pale, short of breath, and very restless. Nothing abnormal could be made out in the abdomen, except for slight tenderness, and resistance to deep pressure in the epigastrium.

Heart: The heart sounds were normal. The cardiac dullness on the right extended to one inch beyond the right border of the sternum, whilst upwards and to the left its borders could not be determined, as they were continuous with the big area of dullness described below. The apex-beat, however, was clearly felt a quarter inch internal to the nipple in the fifth left interspace. It was of normal character. Pulse 112, regular, and equal on both sides. The artery wall felt somewhat thickened.

Urine: Nothing abnormal noted.

Lungs: The right lung was normal. On the left side there was a large area of absolute dullness involving roughly the upper two-thirds of the chest, back and front. In front it extended from the clavicle down to the fifth interspace, and thence it extended outwards horizontally across the axilla to the seventh rib behind. Below this area the physical signs were normal. Over the dull area the breath sounds and tactile fremitus were entirely lost.

The chest was explored in the posterior axillary line at the lower limit of the dullness and bright blood was obtained.

The pain and the restlessness both diminished rapidly after the exploration, and he was able to sit up and move about in bed without any respiratory distress. The area of dullness, however, extended until by Sept. 22nd it involved the whole of the left side of the chest, accompanied by absence of breath sounds and of tactile fremitus. The position of the right border of the heart, however, remained the same as on admission. On the 23rd the chest was screened by Dr. G. E. Dyas, who reported a marked opacity of the left side of the chest, with a slight displacement of the heart and trachea to the right. He died suddenly, with hardly any warning, on the 25th, nine days after the commencement of the illness.

The Wassermann reaction of the blood was done twice and was negative on each occasion. By the courtesy of Dr. J. Menton a Sigma test and a Kahn test were done, these also being negative.

## *Post-mortem Examination by* S. C. DYKE.

The body was that of a well-nourished male of middle age. On opening the thoracic cavity two large extravasations of blood were apparent, both on the left side. The first of these was confined to the upper, the second to the lower part of the thoracic cavity; the upper one, although intrathoracic, was extrapleural; the second lower collection of blood was within the pleural cavity. It was apparent from the firmness of the clot and the presence of serum that the upper extrapleural collection of blood had been present for some days; the blood constituting the lower intrapleural extravasation had apparently only recently clotted and could not have been present for more than a few hours.

The upper collection of blood had apparently come from the neighbourhood of the great vessels at the base of the heart and had attained its extrapleural position by stripping the parietal pleura from the chest wall. The pleura had remained attached to the base of the heart, but had been stripped off the dome of the chest and the sides and back of the thoracic cavity so far down as the costal attachment of the diaphragm. The upper extrapleural collection of blood was therefore contained in a space bounded on the inner side by the heart and the structures of the mediastinum, on its remaining sides by the walls of the thoracic cavity, and at its base by the stripped-off parietal pleura. In this stripped-off pleura, at about the level of the fourth rib, was a rent about 3 inches in length, and it was apparent that it was through this rent that the hæmorrhage giving rise to the second intrapleural collection of blood had taken place. This rent had presumably originated in the puncture of the stripped-off pleura by the exploring needle on the previous day. The presence of the two hæmorrhages had served to collapse the left lung, to push the heart slightly over to the right side, and to thrust down the dome of the diaphragm on the left side.

On opening the pericardial sac no contained blood was found. The heart was large and the left ventricle showed distinct hypertrophy of the walls. Otherwise no abnormality was present. No extravasation of blood was present in the tissues of the anterior mediastinum, but on removing the heart and lungs it was apparent that blood had found its way generally throughout the posterior mediastinum, more particularly in its upper part; this blood was for the most part lying in the areolar tissue supporting the various structures. The most intense degree of extravasation had occurred into the walls of the aorta, the blood having found its way between the media and adventitia with the result that throughout the whole length of the thoracic aorta these two coats were completely separated by a lamina of blood-clot. This layer of clot was thickest in the neighbourhood of the arch, where it attained a depth of 10 mm.; from there it dwindled in thickness down to the diaphragm; the abdominal aorta was not affected.

On opening the aorta a condition of the most intense atheroma was disclosed. Numerous large calcareous plaques were present, and throughout, the intima was the subject of fatty change. On the posterior surface of the vessel just below the arch was a linear tear 20 mm. in length through both intima and media, running in the long axis of the vessel. This tear, through which it was evident that the extravasation of blood had taken place, extended upwards from an atheromatous plaque, which was presumably the site at which the wall had originally given way.

With the exception of the kidneys all the other organs were apparently normal. The kidneys were small, and on section showed considerable diminution in depth of the cortex; the capsule stripped fairly readily, exposing the granular surface characteristic of "primary chronic interstitial nephritis." Histologically both kidneys showed a moderate degree of fibrosis and round-celled infiltration of the interstitial tissue; the glomeruli were entirely free from any evidence of inflammation. The smaller vessels showed to an extreme degree that fatty change of the intima universally associated with "chronic interstitial nephritis."

### *Comment.*

In most of the recorded cases it would appear that after the primary rupture of the intima and media the spread of the hæmorrhage was limited by the adventitia, death being brought about by the later rupture of this last coat. In the case recorded above the rôle usually sustained by the adventitia alone was in part taken on by the parietal pleura which was stripped off the ribs by the hæmorrhage. It was the rupture of this membrane in this case and not, as is usual, rupture of the adventitia which was the immediate cause of death.

The atheromatous condition of the aorta in this case was apparently a part of the diffuse disease of the intima of the vasculature which is always associated with "primary chronic interstitial nephritis." It has already been pointed out that fatty change of the intima of the smaller vessels was a marked feature in microscopical sections of the kidney, and the same applied to the spleen, the only other organ examined. In "primary chronic interstitial nephritis" this fatty change of the intima of the smaller vessels of the kidney is unfailingly present; it is usually present to some extent in the aorta also, though rarely to the extent shown in this case. The cerebral vessels are also often affected, rupture of these as a result of the condition being, of course, a far commoner event than rupture of the aorta.

The absence of any history and the negative results of all the diagnostic tests may be taken as definitely excluding any syphilitic element in the case.

# DIVERTICULITIS AND ITS SURGICAL TREATMENT.*

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ALTHOUGH diverticulitis is by no means a rare condition, it is only within recent years that it has been recognised and fully described, and even now it will not be found mentioned in many of the text-books on medicine. It is a condition of the latter half of life, due to the formation of small hernial protrusions from the lumen of the bowel through the muscular coat. These pouches, or diverticula, may be found in any part of the alimentary canal (except possibly the rectum), but are most common in the large intestine, and particularly in the pelvic portion.

We have to recognise two distinct conditions due to pouching of the walls of the large gut. Diverticulosis, a condition in which there are numerous small pouches or hernial protrusions in the walls of the colon, which are demonstrable by examination with a barium enema under the X rays, but which is not accompanied by any symptoms referable to the diverticula. Dr. E. I. Spriggs, at Duff House, found that 10 per cent. of the patients examined by X rays in that institution showed well-marked evidence of diverticulosis. The average age of the patients examined was 45, and they had all come to the institution for the relief of some abdominal condition, so that we can say that 10 per cent. is probably much too high a figure if applied to the generality of persons.

The other condition is that of diverticulitis, in which secondary inflammatory changes have taken place in the diverticula, and definite symptoms attributable to these changes are complained of by the patient. The great importance of detecting the condition in its earliest stages before serious inflammatory changes have taken place will be readily appreciated, and in this connexion Dr. Spriggs's valuable investigations have done a great deal to throw light on the subject. No doubt routine examinations and careful treatment will, in the future, do much to prevent the condition of diverticulosis from developing into the more serious condition of diverticulitis.

It is the latter condition which chiefly concerns us here, and I will confine my remarks chiefly to the means of dealing with it.

Of my 41 cases, 25 were men and 16 women. This agrees with Dr. Spriggs's figures for diverticulosis of 71 men and 20 women. The average age of my cases was 60, and the youngest case was 42. Dr. Spriggs suggests that the cause of the condition is the habitual use of aperients, but the fact that the condition is commoner in men than in women seems to disprove this, as there can be no doubt that the habitual use of aperients is much commoner with women.

### *Symptoms.*

In the early stages of any abdominal disease the symptoms tend to be very vague and uncertain. Vague pain in the abdomen, discomfort, slight disturbance of the bowel actions, are all too uncertain to be of much value, though if they lead the doctor to have the colon examined by X rays may reveal the condition. The typical symptoms of a developed diverticulitis are attacks of pain and tenderness over some portion of the colon, usually the sigmoid flexure, accompanied by a slight rise of temperature. Symptoms of chronic obstruction of the bowels accompanied sometimes by the presence of a palpable tumour, felt either through the abdominal wall or per rectum by bimanual examination, may be present and will closely simulate carcinoma, but may be distinguished from it as a rule by the accompanying tenderness and signs of inflammation. The attacks may be at long intervals and there may be a history of difficulty with the bowels extending over a period of years. The diagnosis is often very difficult, but a bimanual examination of the pelvis will often enable a mass to be felt, and the sigmoidoscope gives useful information in some cases. A barium enema, if properly done, is of the utmost value, but only the very best X rays are of any use if the diverticula are to be seen. I am frequently having cases sent to me with X ray photographs of the colon showing nothing abnormal, and when the patient is photographed again in the proper way numerous diverticula are easily demonstrated.

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* An address read before the Sutton and Wallington Medical Society, Jan. 29th, 1920.

To obtain proper photographs certain things are essential. The photograph must be taken instantaneously, or the movements of the colon will blur the photograph and hide the diverticula. Also, the enema should be made up with a thin medium, such as butter-milk. It is also very important that the patient should be photographed some 12 hours after the enema has been evacuated, as, while the enema is in place, only those diverticula can be seen which are situated at the edge of the bowel. After the bowel has been emptied the diverticula can be seen as opaque round objects in the line of the bowel and give rise to an appearance which is quite characteristic and unlike anything else. By far the commonest situation for the diverticula to cause trouble is in the pelvic colon. Thus, out of 41 cases of my own the distribution was as follows: sigmoid only, 36; transverse colon, 3; cæcum, 1; ascending colon, 1. Once the diverticula have formed and become full of hard fæcal material, the inflammatory changes due to the irritation of a foreign body within the thin-walled diverticulum sooner or later occur and set up secondary changes.

The tendency is for one or more of the diverticula to perforate. Perforation may occur from sloughing of a concretion through the thin wall of the diverticulum, from gangrene of the diverticulum, or from the formation of a local abscess, which subsequently bursts into the peritoneal cavity or some other viscus. The latter, in my experience, is the most usual. Perforation into the bladder is not uncommon, and I have met with three cases out of 41. An intense cystitis results with the passage of flatus and fæces per urethram.

Perforation, with the formation of local abscesses in the pelvis and one or more openings on the abdominal wall, is not uncommon. One of the great troubles of such cases is that the abscesses are nearly always multiple, and proper drainage cannot readily be established. It is rather like trying to drain a sponge. Fresh abscesses keep forming in the midst of a dense mass of hard fibrous tissue, and such cases are the cause of much anxiety and are most unsatisfactory to treat. I had one case in which there were as many as five different sinuses in the abdominal wall, all leading down to a dense mass of fibrous tissue. This condition lasted for several years, and ultimately malignant changes occurred in the skin with fatal results.

### *Association of Diverticula with Tumour Formation.*

The greatest interest attaches to those cases in which there is tumour formation from the deposit of dense fibrous tissue around the inflamed diverticula. Such tumours often reach a considerable size, and are almost invariably fixed and adherent to other structures. These cases are frequently confused with malignant disease, and even when the surgeon is able to handle the tumour from inside the abdomen it is not always possible to be sure whether the case is one of cancer or diverticulitis. Evidence of inflammation and the presence of diverticula in other parts of the colon will help, but such evidence is not always present.

Two distinct types of tumour may be recognised from a pathological point of view. In the more usual type, on laying open the tumour there are several large diverticula containing concretions surrounded by an irregular mass of very hard fibrous see Figs. 1 and 2). In the other type, which in my experience is less usual, the tumour consists of a dense mass of cartilaginous tissue of a pale grey colour, through which can be traced numerous very narrow channels representing diverticula. These channels are so narrow that they will only admit a bristle, and large cavities are seldom seen. (Fig. 3.) The density of the cartilage in these cases is surprising, and much resembles a cartilaginous tumour, so that it is hardly surprising that many of them have been mistaken for new growths. These tumours are always adherent to others structures, and are generally situated at, or near, the middle of the sigmoid flexure. Their removal is a matter of considerable difficulty, but can often be successfully managed if their true nature is recognised. Unfortunately, they are often mistaken for malignant disease, and, of course, as such are not worth attempting to remove as they are adherent to other structures. Cases of so-called cancer of the bowel, that have recovered after a simple colostomy, are mostly accounted for in this way.

### *Treatment.*

The surgical treatment of diverticulitis presents many serious difficulties. Naturally, it is only when serious secondary inflammatory changes have occurred that the surgeon is asked to interfere. The indications for surgical interference are in my opinion: (1) Persistent attacks of pain and tenderness in spite of careful medical treatment, the latter being directed to keeping the bowel contents liquid, and general means to improve the patient's resistance, rest, dieting, &c. (2) Attacks of threatened obstruction of the colon. (3) The presence of a palpable tumour in the colon. (4) Evidence of threatened perforation into the bladder, such as attacks of pain in the left iliac fossa accompanied by frequent and painful micturition. (5) Evidence of perforation with abscess formation or peritonitis. One of the great difficulties of dealing with these cases is that the tissues are of necessity highly septic, and that there is a danger of setting up peritonitis by breaking down adhesions in attempting to free the damaged bowel.

The ideal treatment, when the condition is localised to the middle of the sigmoid and a tumour has formed, is resection of the affected colon with end-to-end anastomosis. This is in many cases a distinctly risky procedure, but as often the only alternative is a permanent colostomy, a certain amount of risk is justifiable. The following is a good instance of such a case:—

A lady, aged 56, was sent to me with a large, hard, and very tender tumour in the sigmoid flexure, which could be felt through the abdominal wall and bimanually. A diagnosis of diverticulitis was made, and I opened the abdomen. I found a large mass in the sigmoid densely adherent to the back of the uterus and to the left Fallopian tube. I removed it with some difficulty, together with the uterus and tube, and joined the bowel end to end. A temporary cæcostomy, with a rubber tube, was established and the abdomen closed with a wick drain. The patient made an uninterrupted recovery, the cæcostomy opening closing on the twelfth day.

In another case a lady of 48 had a similar tumour, and on opening the abdomen I found that a perforation had already occurred into the left Fallopian tube, which was full of pus. The tumour was removed after evacuating the pus and the bowel joined end to end with temporary cæcostomy in the same way. This patient also recovered without any bad symptoms. In both these cases there were no evident diverticula in any other part of the colon. The specimens from both these cases are illustrated in Figs. 1 and 2.

I have, in all, resected the sigmoid for diverticulitis ten times, eight times with immediate end-to-end anastomosis and twice with colostomy. There is no doubt that resection with anastomosis gives the best results, and is the only method, once a tumour has formed, which cures the patient and leaves him in a normal condition.

The safest procedure, and that which most often has to be done, is colostomy above the site of obstruction, or perforation, as the case may be. As a rule, the colostomy opening should be established in the transverse colon, so as to be well away from the disease and not liable to become involved in the adhesions. Occasionally, in the course of time, the condition may subside sufficiently to enable a subsequent resection to be performed, but this is not often possible. The results where a colostomy is done in time—that is to say, before the sepsis has reached too advanced a stage—are excellent. The inflammatory mischief gradually subsides and all symptoms disappear. The bowel, however, strictures up almost completely as a rule, and apart from resection there is no hope of subsequently closing the colostomy.

The obvious question that suggests itself is what possibilities are there between these two measures—resection and anastomosis and a permanent colostomy? There are several possibilities more or less satisfactory. One is to perform an ileo-sigmoidostomy, so as to short-circuit the damaged bowel. It is only in a very few cases that there is sufficient healthy bowel below the damaged portion to render this possible; also, there is a serious danger of the anastomosis becoming subsequently involved in the adhesions and inflammatory mischief around the diverticula. This happened in one of my cases, and colostomy had to be performed to relieve the condition.

Another plan, which I have carried out successfully in several cases, is to free the involved portion of bowel very carefully by breaking down the adhesions, if necessary removing any very prominent diverticulum, and to draw the damaged bowel well up on to the ileum and wrap it well up in a fold of omentum drawn down for the purpose. This prevents the inflamed bowel from becoming again adherent to the bladder or small intestine, and makes it probable that, should a local abscess or perforation occur, it will remain localised to the iliac fossa, where it can be more safely dealt with. The patients that I have treated in this way have kept well by being very careful to keep the contents of their colons absolutely liquid, and the thickening in the colon has subsided in the course of time so much that it is not now palpable. This is not, of course, a very radical method of treatment, but it has certainly saved several patients from a colostomy, and they themselves have been very pleased with the result. It is, of course, not available when obstructive symptoms have already shown themselves, and it is quite possible that some of these patients may eventually get obstruction and require colostomy.

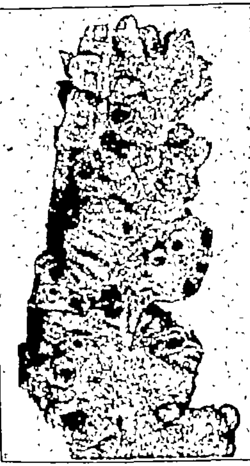
*Results.*

Out of 41 cases which I have had to treat surgically, in 32 some form of radical operation was performed apart from merely opening abscesses.

| | Cases. | | Deaths. |
|---|---|---|---|
| Colostomy .. .. .. .. | 13 | .... | 0 |
| Resection and colostomy .. .. | 9 | .... | 1 |
| Resection and end-to-end anastomosis | 8 | .... | 2 |
| Freeing adhesions and removal of one or more diverticula .. .. .. | 9 | .... | 1 |
| Simple drainage and cæcostomy .. | 2 | .... | 0 |

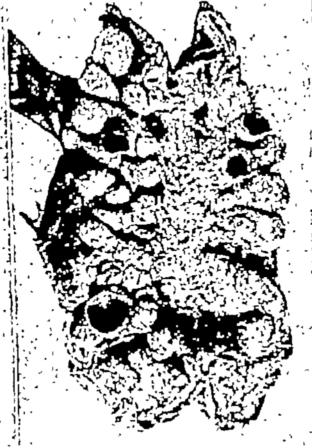
It will be seen that by far the safest method is colostomy well away from the seat of the trouble.

FIG. 1.



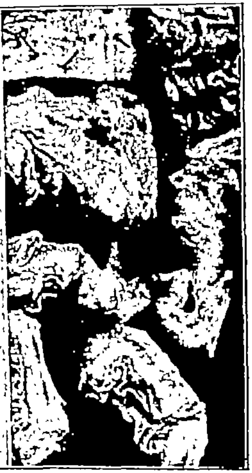
Specimen showing numerous diverticula, some of which have been cut open, and dense fibrous tissue. This tumour was successfully resected and the patient has remained well.

FIG. 2.



Specimen of diverticulitis of the colon showing diverticula, some of which are laid open. This tumour was successfully resected.

FIG. 3.



Specimen showing dense cartilaginous thickening of the colon wall due to diverticulitis. Tumour successfully resected.

All these patients did well, except one who developed cancer in an old sinus and died two years later. The others all got quite well and all symptoms subsided. Some are still in good health, 10 and 11 years after operation. The objections to this operation are, of course, obvious. Of the eight cases treated by resection, two died, both from lung complications. The others have remained quite well, and there is no doubt that this is the ideal method when possible, which, unfortunately, is not often the case. Of the nine cases treated by freeing adhesions, one died from sepsis. There is always danger in these cases, even in disturbing the adhesions. The others have remained well with occasional slight attacks of pain, but up to date with no serious complications. In one case a diverticulum in the transverse colon leaked and set up general peritonitis; the patient was a lady of 70. I drained the pelvis and the perforation and performed a cæcostomy. This patient recovered. Another case was that of an elderly gentleman, who had a perforation of a diverticulum of the ascending colon and general peritonitis. He was not operated upon till four days after the perforation, but recovered with free drainage and was quite well five years later.

### *Summary.*

Diverticulitis is a condition which, if detected in its early stages and properly treated, may be so kept in check that surgical interference will not be necessary, or may be much delayed. In its fully developed condition it is a very grave disease with most serious possibilities, and surgical interference is indicated before the more serious complications have taken place.

Operations for diverticulitis are both difficult and dangerous. Interference with the diseased bowel may easily set up grave sepsis or result in a fæcal fistula, and great care and judgment is necessary. Colostomy well away from the trouble is the safest procedure and should not be dangerous if the diseased bowel is not too thoroughly explored, or not explored at all.

Resection with end-to-end anastomosis and temporary cæcostomy is the ideal treatment, and the results I have obtained in recent years by this method have more than justified the procedure. As an alternative, wrapping the diseased bowel in omentum after freeing adhesions will give good results. When serious complications, such as local abscess, perforation into the bladder, or general peritonitis have already occurred colostomy is the only justifiable procedure.

*References.*—E. I. Spriggs and O. A. Marxer: Intestinal Diverticula, Quarterly Journal of Medicine, 1925, xix., 73. J. P. Lockhart-Mummery: THE LANCET, 1922, ii., 1117.

# GLYCOSURIA IN ACROMEGALY.

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GLYCOSURIA occurs in about 10 to 15 per cent. of acromegalics. Its exact relationship to pituitary disease is still in doubt. Ellis[1] has reported a case in which surgical removal of a pituitary tumour in an acromegalic was followed by improvement in carbohydrate metabolism. He has reviewed the current theories to account for the failure in carbohydrate metabolism, and, to fit the reported case, has supplied one of his own—that the glycosuria is related to excessive function of the intermediate lobe.

That there is some relationship between pituitary secretion and carbohydrate metabolism is undoubted, yet we must be mindful of the possibility that the glycosuria in acromegaly may be in some cases an independent condition, an essential diabetes. The question can hardly be settled by the experience of one clinician because acromegaly is relatively a rare disease, and therefore it seems desirable that the following single case be recorded as a help towards the accumulation of the necessary clinical data.

### *Report of Case.*

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*Condition on Admission.*—Weight 11 st. 12½ lb. Systolic blood pressure 110–120 mm. Hg; temperature, 98° F.; pulse, 80.

The patient had the appearance of a typical acromegalic. hands showed splaying out with square cut ends of the terminal phalanges. Voice deep and resonant. The tongue was large and fissured, and the lower jaw massive. Enlargement of the feet was present, but much less than that of the hands. Kyphosis was marked. X ray showed the sella turcica to be enlarged. The visual fields were normal. On ordinary ward diet the urine contained 0·6 per cent. of glucose, 230 g. in the 24 hours, with a large quantity of ketones. The glycosuria persisted after four days' starvation, only fluids being permitted, and the urine still contained 1·2 per cent. of glucose. The blood-sugar at the end of this time was 0·26 per cent. A glucose-tolerance test showed a diabetic curve. One hour and 50 minutes after ingestion of 50 g. of glucose the blood-sugar was 0·375 per cent. (its highest point), and at the end of three hours the blood-sugar was still 0·31 per cent. During the three hours 9·3 g. of glucose were excreted in the urine.

The patient was then given a diet of C. 33, P. 48, F. 77, calories 990, and the glycosuria continued for the next three days. The quantity of urine was now less than 1500 c.cm. in the 24 hours and the glucose excretion was 15 g. Insulin was then given, starting with 5 units twice a day and increasing to 10 units twice a day when the glycosuria disappeared. The diet was increased to 1555 calories (C. 39, P. 55, F. 131) and then again in two stages to 1960 calories (C. 57, P. 58, F. 167), and the insulin raised to 30 units a day in two doses given night and morning. The blood-sugar four and a half hours after breakfast and five hours after insulin was 0·24 per cent.—the urine being sugar-free with a trace of ketones.

The insulin was increased successively to 40, 45, 50, 55, and 60 units a day to lower this hyperglycæmia but the effect was only small, for the blood-sugar fluctuated throughout the day between 0·15 per cent. and 0·20 per cent., and the morning fasting blood-sugar was 0·22 per cent., so that an increase of 30 units of insulin had had only a small effect on the blood-sugar. After five and a half weeks' treatment his weight was 12 st. 1 lb., and his general condition was much improved when he was discharged from hospital.

Ten weeks later, Feb. 14th, 1925, he reported again. He had to reduce the insulin by 5 units in the evening because of the occurrence of symptoms of hypoglycæmia. His blood-sugar two and a half hours after breakfast and three hours after 30 units of insulin was 0·095 per cent., and two hours later 0·080 per cent. The recovery from the diabetic state continued and the patient never again had glycosuria. Two months later the insulin was reduced further to two doses of 20 units each. In November, 1925, he had an attack of "influenza" and was in bed for a week. Dyspnœa and œdema then developed, and a month later he was admitted to another hospital where he died in a week. During the last week before admission he had cut all carbohydrates out of his dietary, taken no insulin at all, and yet remained sugar-free. In hospital his urine was found to contain a trace of albumin but no blood or sugar. His systolic blood pressure was 170 mm. during an attack of dyspnœa but fell to 140 later. He was regarded as showing cardiac failure, and died in a sudden attack of dyspnœa with cyanosis. There was no bronchitis.

*Post-mortem Examination.*—A necropsy was not granted until 40 hours after death, and the organs were obtained by the courteous interest of Dr. Frank Deas. The pituitary was very large, but not cystic, and with no malignant extension. The lungs showed no naked-eye evidence of inflammation. The heart was hypertrophied, weighing 25½ oz. There was some atheroma of the mitral valves, and much more severe degeneration in the mesenteric vessels. The abdominal viscera did not show conspicuously the splanchnomegaly that may occur in acromegaly. The kidneys weighed 8 oz. each, and were slightly granular with small cysts, the general changes being arterio-sclerotic. The pancreas was large. Microscopically there were no serious pathological changes in either kidney or pancreas, after making allowance for post-mortem alterations. The atheroma of the intermediate or larger arteries had not led to much atrophy in the organs supplied by them.

### *Commentary.*

The glycosuria in this patient was probably independent, for the acromegaly had been stationary for over 33 years and the glycosuria had developed only in the last three to four years. The glycosuria was identical with that of diabetes, it reacted similarly to insulin and control of the diet. It was severe, starvation for four days before the use of insulin failed to control it; and the renal threshold to glucose was higher than normal (between 0 21 and 0·25 per cent.).

But there is an undoubted relationship between renal function and pituitary secretion. It is possible, though not proven, that from an excessive pituitary secretion in acromegaly an elevation of the renal threshold for glucose might occur from direct action on the kidney. Moreover, it is now established that pituitary secretion and insulin are antagonistic, so that from an excessive pituitary secretion neutralising insulin a condition of hyperglycæmia might arise and because of the elevation of the renal threshold the hyperglycæmia would not produce glycosuria. Thus a condition of persistent hyperglycæmia would occur and the long-continued strain on the islets of Langerhans due to the stimulus of excessive sugar in the blood would result in damage to them and failure in production of insulin with consequent glycosuria and diabetes mellitus. In this way the above case could be brought into line with a pituitary origin for the glycosuria, the ultimate failure of the islets not having occurred until 30 or more years after the onset of hyperpituitarism. It is noteworthy that the diabetic tendency lessened as the result of treatment with insulin and strict control of the diet, and that the necropsy did not reveal positive evidence of such disease in the pancreas as would have made it certain that the diabetes was of pancreatic origin

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[1] Ellis, A. W. M.: THE LANCET, 1924, i., 1200.

# Medical Societies.

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### ÆTIOLOGY AND DIAGNOSIS OF GALL-STONES.

It was difficult, he said, to separate the closely allied subjects of gall-stones and inflammation of the gall-bladder, especially in the matter of diagnosis. Cholelithiasis occurred most frequently in "fat, flatulent, fertile females over 40," among the reasons for this being pregnancy, disordered metabolism leading to increased cholesterol content, the risk of puerperal infection, and sedentary habits. The two immediate causes of gall-stone formation were infection of the biliary passages and that disorder of the metabolism of fats which brought about an excess of cholesterol in the blood, and therefore in the bile. Sir Humphry Rolleston discussed the probable mechanism of these. A non hæmolytic streptococcus was believed by some to be a more important cause of cholecystitis than *B. coli*, but numerous others gave the latter a *prime* place. It might be a sequel of typhoid fever, even many years after the fever. The view that appendicitis might be secondary to cholecystitis had received but little support. Of 111 cases of gall-stones, Soper ascribed 106 to diseases of the colon. Excess of cholesterol in the blood (the normal being 0·16 per cent.) McNee showed was accompanied by increase in the bile The metabolic and infective factors in the production of cholecystitis were often combined. There were many cases of very chronic cholecystitis without cholelithiasis, and these would probably so greatly benefit by medical treatment that the more serious sequel would not arise.

In a summary of probable mechanisms in the formation of calculi Sir Humphry Rolleston said that pure cholesterol calculi were formed aseptically and without causal inflammation in a healthy gall-bladder, as a result of a metabolic excess of cholesterol in blood and bile. They might remain latent, or might lead to the common mixed calculi which were favoured by the excess of cholesterol in blood and bile. Small pigment calculi, formed of bilirubin and calcium carbonate, probably formed apart from infection, though were frequently determined by it.

With regard to disposing factors, pregnancy was an important one; gall-stones were ten times commoner in fertile than in sterile women. Stagnation of bile was said to favour their formation. Another factor was over-eating, probably by increasing the available cholesterol. The war privations in Russia showed in the Leningrad Hospital a drop in these diseases from 4·7 per cent. (1916) to 0·8 per cent. (1919). Heredity also played some part, in the direction of a defective metabolism. And arterio-sclerosis and chronic renal disease also increased the cholesterol content of the blood

In the matter of diagnosis—a very large subject—he proposed only to raise a few points. Clinically, the symptoms need to be considered according to their position—i.e., whether in the gall-bladder, the cystic duct, the common bile-duct, the ampulla of Vater, or in the intestine producing obstruction there. These he considered in some detail. When a calculus emigrated out of the gall-bladder it began to cause symptoms more referable to irritation of the biliary tract. He mentioned aberrant forms and the conditions the symptoms simulated. When the calculus passed into the common or other bile-ducts jaundice occurred. Among 1000 operations on the gall-bladder and biliary tract, Truesdale found 75 cases of obstruction of the common bile-duct; and of these, 37 were due to gall-stones, 14 to acute, 16 to chronic pancreatitis. All the pancreatitic cases had gall-stones. Pancreatitis was very likely to ensue from a calculus in the ampulla of Vater.

He regarded X ray examinations in these cases as of rapidly increasing value. The direct method, which showed the stones directly on the plate in 50 per cent., was being improved by inflation of the abdominal cavity with oxygen But the intravenous injection of tetrabromphenolphthalein was prone to give severe reactions, though tetraiodophenolphthalein was less toxic and could be given in pill form. Indirect evidence of gall-bladder disease was distortion of the pyloric region of the stomach, the duodenal cap, or the hepatic flexure of the colon by the traction of adhesions, or by pressure exerted by a large gall-bladder.

Laboratory tests were less decisive in the diagnosis of gall-stones than in that of many other conditions, and at best only provided one of several factors to be considered. Cammidge's tests of urine and fæces had now fallen out of favour, but the speaker said that he had for years experienced much help from Cammidge's reports as to the diagnosis of doubtful cases of jaundice which might be due either to gall-stones, pancreatitis, or new growth.

*The Surgical Aspect.*

Mr. R. P. ROWLANDS presented the subject from the surgical side. He said that most reliance at present could be placed on a painstaking study of the clinical symptoms and the ordinary physical signs. Still, every source of information should be tapped and used as a help in diagnosis. Except in really urgent cases, much was to be said in favour of a careful routine examination. Gall-stones were often distinguishable from other conditions by the long duration and the recurrent character of the symptoms which might follow pregnancy or enteric, chiefly in fat, middle-aged women. The symptoms of gall stones were more vague and capricious than those of duodenal ulcer, and they gave a tenderness on deep percussion higher up and further out. Hyperchlorhydria was only occasionally associated with gall-stones, but was almost constant in duodenal ulcer. X ray examination was important in excluding such diseases as duodenal ulcer and cancer of the stomach, but he did not regard it as so important as Sir Humphry Rolleston suggested. Examination of the duodenal bile was a very valuable method, as it often showed pus, or crystals, or an excess of mucus. Cancer of the stomach sometimes presented considerable difficulties, especially when achlorhydria was discovered. But its deficiency might be accidental and have no relation to cancer. The fever of cholangitis had been mistaken for malaria, but should not have been if a blood examination had been made. He had known a blood-clot cause severe colic by blocking the common bile-duct; the lady died from hæmorrhage which had originated in an ulcer general peritonitis. He was not operated upon till four days after the perforation, but recovered with free drainage and was quite well five years later.

### *Summary.*

Diverticulitis is a condition which, if detected in its early stages and properly treated, may be so kept in check that surgical interference will not be necessary, or may be much delayed. In its fully developed condition it is a very grave disease with most serious possibilities, and surgical interference is indicated before the more serious complications have taken place.

Operations for diverticulitis are both difficult and dangerous. Interference with the diseased bowel may easily set up grave sepsis or result in a fæcal fistula, and great care and judgment is necessary. Colostomy well away from the trouble is the safest procedure and should not be dangerous if the diseased bowel is not too thoroughly explored, or not explored at all.

Resection with end-to-end anastomosis and temporary cæcostomy is the ideal treatment, and the results I have obtained in recent years by this method have more than justified the procedure. As an alternative, wrapping the diseased bowel in omentum after freeing adhesions will give good results. When serious complications, such as local abscess, perforation into the bladder, or general peritonitis have already occurred colostomy is the only justifiable procedure.

*References.*—E. I. Spriggs and O. A. Marxer: Intestinal Diverticula, Quarterly Journal of Medicine, 1925, xix., 73. J. P. Lockhart-Mummery: The Lancet, 1922, ii., 1117.

# GLYCOSURIA IN ACROMEGALY.

By K. S. HETZEL, M.B., B.S. Adelaide, M.R.C.P. Lond.,

ASSISTANT IN THE MEDICAL UNIT, UNIVERSITY COLLEGE HOSPITAL.

Glycosuria occurs in about 10 to 15 per cent. of acromegalics. Its exact relationship to pituitary disease is still in doubt. Ellis [1] has reported a case in which surgical removal of a pituitary tumour in an acromegalic was followed by improvement in carbohydrate metabolism. He has reviewed the current theories to account for the failure in carbohydrate metabolism, and, to fit the reported case, has supplied one of his own—that the glycosuria is related to excessive function of the intermediate lobe.

That there is some relationship between pituitary secretion and carbohydrate metabolism is undoubted, yet we must be mindful of the possibility that the glycosuria in acromegaly may be in some cases an independent condition, an essential diabetes. The question can hardly be settled by the experience of one clinician because acromegaly is relatively a rare disease, and therefore it seems desirable that the following single case be recorded as a help towards the accumulation of the necessary clinical data.

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*Condition on Admission.*—Weight 11 st. 12¼ lb. Systolic blood pressure 110–120 mm. Hg; temperature, 98° F.; pulse, 80.

The patient had the appearance of a typical acromegalic. The hands showed splaying out with square cut ends of the terminal phalanges. Voice deep and resonant. The tongue was large and fissured, and the lower jaw massive. Enlargement of the feet was present, but much less than that of the hands. Kyphosis was marked. X ray showed the sella turcica to be enlarged. The visual fields were normal. On ordinary ward diet the urine contained 6·6 per cent. of glucose, 230 g. in the 24 hours, with a large quantity of ketones. The glycosuria persisted after four days' starvation, only fluids being permitted, and the urine still contained 1·2 per cent. of glucose. The blood-sugar at the end of this time was 0·26 per cent. A glucose-tolerance test showed a diabetic curve. One hour and 50 minutes after ingestion of 50 g. of glucose the blood-sugar was 0·375 per cent. (its highest point), and at the end of three hours the blood-sugar was still 0·31 per cent. During the three hours 9·3 g. of glucose were excreted in the urine.

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### *The Radiological Aspect.*

Dr. **ROBERT KNOX** presented the radiological aspect of the subject, his contribution consisting chiefly of the epidiascopic demonstration of a remarkably instructive series of skiagrams of his own and Dr. Stewart's, of New York. He said the greatest advance in the delineation of the shadows in the deep regions under discussion followed the use of tetraiodophenolphthalein, and the oral administration of this he regarded as safe.

### *Discussion.*

Mr. **PATERSON ROSS** spoke favourably of the cholecystography method, and pointed out that the serious reactions following the oral method occurred in the early cases. The solution certainly became more toxic with keeping, even in ampoules, therefore it should be used very fresh.

Sir **CRISP ENGLISH** agreed with Sir Humphry Rolleston's disposing conditions tending to the production of gall-stones, and insisted that gall-stones were a very common condition. In 4300 post-mortem examinations he found 242 cases of gall-stones, or 5·7 per cent. A conclusion therefore was that they often occurred without causing symptoms. He agreed with Mr. Rowlands that the diagnosis of gall-stones was mainly a matter of hard clinical work; often careful watching would result in a correct diagnosis in a difficult case. He spoke highly of Dr. Knox's demonstration.

Dr. **RALPH KNOTT** said that after doing a series of 200 examinations of duodenal contents for diagnostic purposes in connexion with gall-bladder disease, the question arose whether it was worth while. If positive results were obtained they were useful, as the surgical findings accorded with them, but a negative report was of much less value. These tests, he thought, should be used when other evidence was either doubtful or conflicting.

Dr. **PARKES WEBER** discussed the question of hepatic efficiency in diagnosing cirrhosis of the liver differentially from cholelithiasis. In some cases a surgeon had operated when subacute hepatic atrophy was present, with the result that the anæsthetic caused a fatality. Hepatic efficiency tests should, he thought, be used by surgeons before operating.

Dr. **LENNOX WAINWRIGHT** pointed out that the injection salts for promoting clarity of radiographic pictures suffered from exposure to light, and would probably alter in character.

Sir **WILLIAM WILLCOX** uttered a note of warning concerning the intravenous injection of tetraiodophenolphthalein. He said the extra clearness of radiographic shadows of gall-stones was often due to the presence of traces of copper in them. He had also found minute traces of the same metal in fæces which he had examined. He agreed with Mr. Rowlands as to the great value of the clinical evidence of gall-stones. Also a four-hourly temperature observation was of use, as gall-stones usually produced a rise to 100° F., whereas renal conditions did not.

Dr. **KNYVETT GORDON** said he considered a careful histological examination of the blood was of some value in the diagnosis of gall-stones; there was nearly always an associated polymorphonuclear leucocytosis. The *B. coli* had much to do with these conditions, but not the ordinary strain, and he advocated the application of laboratory tests to the *B. coli* found in the stools. The diastatic content of the urine was also important in the diagnosis of malignant growth at the head of the pancreas; it was not increased in gall-stones or cholecystitis, but was in pancreatic disease.

The **PRESIDENT** spoke of the kind of case, of which he had seen several, where operation did not reveal gall-stones, but a very long gall-bladder hung down from the liver by a small attachment, and when it got twisted it caused attacks of pain closely resembling those of gall-stones. In some of these he had deliberately removed the gall-bladder and the patient had remained free from pain though the operation was done years ago. On more than one occasion, when patients had come under observation because of what was thought to be gall-stones, the urine had been found to have a considerable increase of diastase due to recurrent pancreatitis, and by treating the latter the trouble had been got over. Removal of carcinoma of the gall-bladder gave much better results in regard to freedom from recurrence than did operation on carcinoma elsewhere.

## LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held on Feb. 5th Mr. **A. L. WHITEHEAD**, the President, occupied the chair, and a paper by Prof. **J. W. MCLEOD** and Dr. **BERTHA WHEATLEY** was read, entitled

### *The Importance of Bacterial Hæmolysins in Pernicious Anæmia.*

The emphasis recently laid on the importance of achlorhydria in pernicious anæmia had awakened, they said, fresh interest in the bacterial hæmolysins as possible factors in the development of this disease; for an increased bacterial content of the upper bowel in achlorhydria had been accepted by all investigators. Their own observations had been made with the help of Dr. W. MacAdam in obtaining duodenal fluids by means of the Einhorn tube. Twelve cases of pernicious anæmia and several patients with normal or hyperchlorhydric gastric juice, as well as one or two achlorhydrias without anæmia, had been investigated. The general impression obtained by examining both fresh and heated blood-agar plates inoculated from these fluids was that in all achlorhydrias the duodenum contained large numbers of bacteria amongst which the pharyngeal and bowel types were fairly evenly represented.

It was noteworthy that no actively hæmolytic streptococcus had been isolated, although the common types of mouth streptococcus, which gave slight haloes of clearing on blood-agar plates, were usually present. The two hæmolytic bacteria found were the hæmolytic hæmoglobinphilic bacterium of Pritchett and Stillman and *B. welchii*. The first had been found more often, but *B. welchii* produced a more powerful hæmolysin. Prof. Adrian Stokes in this country, and Moench, Kahn and Torrey [1] in America had recently drawn attention to the markedly increased content of *B. welchii* in the fæces in pernicious anæmia. Unless a specific parasite responsible both for the achlorhydria and the anæmia existed, it seemed likely that *B. welchii* played the chief rôle in producing anæmia when once the bowel and throat bacteria had invaded the jejunum and duodenum. Difficulties, however, existed in regard to the rôle of *B. welchii*, since it had been found, by Kahn and Torrey and by Cornell, that injections of Welch toxin induced an increase in the polymorphonuclear leucocytes, and also, after a short time, immunity.

Dr. **J. GORDON** read a paper on the

### *Influence of Amino-Acids on Bacterial Growth.*

Fourteen different amino-acids, he said, had been investigated separately with reference to their effect on the growth of bacteria in concentrations from 0·1 per cent. to 1·0 per cent. in 1·0 per cent. peptone broth. No marked effect had been observed on the growth of bacteria, such as *B. coli* and staphylococcus, which constantly grow freely in peptone broth. Such of the more delicately-growing bacteria as were tested had been distinctly influenced by some amino-acids, and by this criterion the amino-acids might be divided into three groups: (a) *Indifferent:* arginine, glutamic acid, histidine, leucine, lysine, tyrosine, and valine; (b) *favouring:* taurine, aspartic acid, and alanine; and (c) *inhibitory:* cystine, glycine, phenylalanine, and tryptophane. In the absence of serum or blood, media with a basis of tryptic digest were inferior to peptone broth for growing delicate bacteria; such media could be improved if a considerable part of the amino-acid was removed by butyl alcohol extraction.

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[1] Journal of Infectious Diseases, 1925, xxxvii., 162.

### *Demonstration of Specimens.*

Dr. H. H. MOLL (Leeds), in association with Dr. O. W. VINING, showed an example of a Meckel's diverticulum 2 ft. 0¼ in. long. The diverticulum had become dislocated from its normal anatomical relationship to the small intestine and ran parallel to it for the whole of its course, and was also firmly and physiologically adherent to it. The whole specimen had the appearance of several feet of double intestine. Dr. Moll had been unable to find a similar case in the literature He showed a diagram indicating the way in which, in his opinion, the diverticulum had been dislocated from the antimesenteric border of the small intestine.

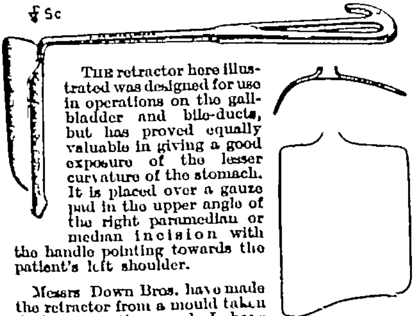
Mr. CARLTON OLDFIELD described a case of ovarian pregnancy and demonstrated the specimen. He reviewed the whole subject of extra-uterine gestation and gave an historical account of its place in obstetrics since the time of Lawson Tait.

Dr. MAXWELL TELLING, Mr. J. A. COUPLAND, and Dr. E. O. CROFT also contributed to the discussion.

Other specimens were shown by Dr. T. H. L. BEDFORD, Dr. A. L. TAYLOR, Mr. A. RICHARDSON, Mr. G. SYMONS, and Dr. VINING, and Dr. F S. FOWWEATHER made Some Remarks on Osteomalacia with special reference to a recent case.

# New Inventions.

## AN IMPROVED RETRACTOR.



THE retractor here illustrated was designed for use in operations on the gall-bladder and bile-ducts, but has proved equally valuable in giving a good exposure of the lesser curvature of the stomach. It is placed over a gauze pad in the upper angle of the right paramedian or median incision with the handle pointing towards the patient's left shoulder.

Messrs Down Bros. have made the retractor from a mould taken during operation, and I have found it fulfils its purpose admirably.

HAROLD UPCOTT, F R C.S Eng.

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KINGSTON-UPON-THAMES POOR LAW HOSPITAL.—The Kingston Guardians have decided by a large majority to proceed with their scheme for the enlargement of their hospital and the erection of a nurses' home at an estimated cost of £100,000 The opposition was based upon the possibility of boards of guardians shortly being abolished.

# Reviews and Notices of Books.

### THE THERAPY OF PUERPERAL FEVER.

By Privatdozent Dr. ROBERT KOEHLER, formerly Assistant of the Gynæcological Department of the Krankenhaus Wieden, Vienna. English edition prepared by HUGO EHRENFEST, M.D., F.A.C.S., Associate in Obstetrics, Washington University School of Medicine. London: Henry Kimpton. 1926. With 27 illustrations. Pp. 276. 18s.

IN the preface to the American edition of this monograph Dr. Ehrenfest states that to his knowledge no work dealing specifically with the problem of puerperal infection has been presented to English-speaking physicians within the last 15 years. It was for this reason that he decided to translate Dr. Koehler's book. The translation appears at an opportune moment, when the inefficacy of many of the therapeutic measures formerly advocated has been only too well demonstrated. Quite recently newer methods, such as chemotherapy and non-specific protein therapy, have figured largely in the treatment of puerperal infections and the author here attempts to assess their true value. At the clinic of Prof. Josef Halban in Vienna, Dr. Koehler has had abundant material and ample means of testing these and other remedies. This investigation he has fully recorded, giving the results of his own experience with each and illustrating important facts by quoting the clinical histories of typical cases. Post-mortem examinations were made on the majority of fatal cases. Animal experiments were not carried out, as the author was convinced that the exact mode of infection that in a woman leads to puerperal fever could not be produced in the lower species; therefore, therapeutic success in the laboratory with any given remedy left the clinician unconvinced.

The book is divided into two parts. Part 1 deals briefly with the prophylactic measures taken to prevent infection, amongst which the method of rectal examination is considered important. The routine use of preliminary lactic acid douches and prophylactic immunisation with vaccines and sera are not favoured Part 2 deals with therapy, and concludes with an extensive bibliography of 20 pages. Innumerable curative measures are here discussed. A few of the more important ones may be referred to The author repudiates the doctrine of the activists and deals conservatively with the post-partum uterus On principle he refrains from instrumentation in the presence of puerperal infection, breaking this routine only in cases where an excessive hæmorrhage caused by placental rests could not be controlled by tight packing of the uterus. He wholly condemns the operation for ligation of veins, and bases his opinion not only on a careful study of necropsy findings but also on the difficulty of diagnosing the extent of the thrombosis and the existence of a concomitant lymphangitis. In his hands curative methods based on the introduction of antiseptics, foreign proteins, or sera into the blood have so far proved inefficient. Actual cure by milk injections was not observed in a single case and this form of treatment was discontinued some years ago. The results of treatment with vaccines, and especially with heterovaccines, compare well with any method of treatment so far suggested, but Dr. Koehler is of the opinion that a rational therapy of puerperal fever is still to seek.

The book is a scientific and masterly treatise.

### MALIGNANCY AND EVOLUTION.

By MORLEY ROBERTS. London: Eveleigh Nash and Grayson. 1925. Pp. 310. 18s.

AS far as can be discerned among the mass—or perhaps rather volume—of words with which it is overlaid, the author's thesis seems to be that cancer is a "hostile symbiosis" of the same nature as organs show in individual development and in evolution. A tumour may in this way be a tentative organ which has somehow been able to evade the normal cooperative control of the body; it may succeed in the individual and kill him, or it may succeed phylogenetically and make a new gland. In one point this view has much to commend it, for it regards tumour formation as an almost normal process and therefore in posing the question of the cause of cancer it asks: Why does not everybody have cancer? instead of the customary, Why do some people have cancer? It gives, that is, particular attention to the mechanism which prevents all epithelia from growing cancers. How far the author succeeds in establishing his hypotheses must be left to those who have the leisure to read his book. His whole idea of the relationships of the different parts of the body being one of hostility rather than of cooperation is probably wrong, and his analogy between the organism and a human society mistaken. But hardened professionals will needs be interested to see how some of their facts strike an astute and studious layman and what he adds them up to. Mr. Roberts, for instance, appreciates that splenomegalic polycythæmia is a tumour; he puts a juster value on the work of Gye and Barnard than some people have done; and he sums up the ways of science and the probable value of outside interference very well when he says: "It is hard to persuade the zealous and brilliant experimentalist that a week of reading and contemplation of other work may give greater results than a month or even a year in a laboratory, while those who might utilise the labour of others too frequently lack the scientific armament which would enable them to undertake such a task." And those who have patience will find many such spots on which Mr. Roberts has put an interesting finger.

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### A TEXT-BOOK OF MEDICAL DIAGNOSIS.

Third edition. By JAMES M. ANDERS, M.D., Ph.D., Professor of Medicine, Medico-Chirurgical College Graduate School of Medicine, University of Pennsylvania; and L. NAPOLEON BOSTON, A.M., M.D., Associate Professor of Medicine, Graduate School of Medicine, University of Pennsylvania. London and Philadelphia: W. B. Saunders Company. Pp. 1422. 55*s.*

THE authors have attempted to produce in one volume a reliable aid to the diagnosis of medical diseases for the general practitioner and student. Diagnostic aspects of each complaint are discussed more exhaustively than is possible in text-books of medicine. The general plan of the second edition has been retained and recent advances have been added.

As a book of reference it is well arranged. The index is good and the subheadings make for rapid work. The pathological definitions of each disease give a clear conception based on its morbid anatomy. The value of this method of approach is emphasised by the authors; its advantage is seen specially in the description of syphilis of the central nervous system and disseminated sclerosis, conditions in which the great variety of symptoms and signs at onset depend on the part of the nervous system first attacked. The separate headings at the end of each section for laboratory diagnosis and summary of diagnosis are valuable and the tables of differential diagnosis, of which there are many, are a useful addition. Clinical methods of investigation are explained fully at the beginning of each system. These are illustrated with diagrams of surface markings and photographs of actual methods of examination. Laboratory methods of use in diagnosis are described; X ray methods are dealt with in special sections and well illustrated. In some instances diseases attacking children as well as adults are treated separately. The space available for this purpose is necessarily limited, but a special tion on the diagnosis of rheumatism in children ight well have been included. The cinematograph ustrations do not give a very clear idea of the abnormalities of gait they represent and a single picture showing the characteristic posture in such cases would probably be more helpful. Apart from this the illustrations are of outstanding merit.

The value of a text-book of diagnosis depends largely on the accuracy of emphasis laid on each symptom, sign, and investigation described. Only by a true knowledge of these proportionate values can a high standard of diagnostic accuracy be maintained, and needless research, often worrying to the patient, be avoided. In this respect the authors have succeeded as far as is possible in a book containing a great amount of information.

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### A MANUAL OF HYGIENE AND PUBLIC HEALTH.

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The book deals in 28 chapters with most of the subjects of importance to the sanitarian in all countries—e.g., vital statistics, climate and meteorology, ventilation, water-supplies, soil, housing, food, refuse and sewage disposal, disposal of the dead, sanitation of villages, fairs, festivals and camps, infection, insect carriers of disease, animal parasites, communicable diseases, personal and industrial hygiene, maternity and child welfare, school medical inspection, and popular education on health. Certain rules and orders in connexion with public health in force in Bihar and Orissa, or in the whole province of Bengal, are reproduced in six appendices. The effective way in which this wide range of material is brought within small compass leaves little scope for criticism. The sequence in which the subjects are taken is a little unusual. It would probably have been more in keeping with the order of ideas which a teacher of public health desires to convey to his students if each had been placed more or less in the order set out above.

Throughout the book mention is made of most of the modern work relating to hygiene, but the terminology is not always up to date. For instance, the term "ptomaine poisoning" is still used, and a bacillus causing food poisoning, presumably the *B. aertrycke*, is referred to under the older name of *B. suipestifer* and classified as one of the paratyphoid bacilli. The classification of rats, a matter of special importance in the East, is very lightly dismissed and the old family name *mus* is retained. References to the original monographs on which our knowledge of plague, epidemic goitre, the association of rickets, and the purdah system in India are founded might with advantage be added in a second edition. Moreover, Leonard Rogers's work on the treatment of leprosy, which is of preventive significance, and the forms of cancer associated with customs peculiar to the East should receive notice.

The discussion of many of the subjects touched upon is a little too elementary for the post-graduate student, and it would be unsafe to rely entirely on this book for the purpose of the diplomas of public health granted by examining bodies in this country. It is, however, well suited for the use of English-speaking Indian medical students and will be useful to young medical men in this country whose work is likely to lie in India or elsewhere in the East. The problems peculiar to these countries are constantly referred to in illustration of the principles of sanitation, and space is not wasted in any attempt to convey clinical or bacteriological knowledge which may have a bearing on hygiene but ought to be the subject of separate study.

### SURGERY.

*An Introduction to Surgery.* Second edition. By RUTHERFORD MORISON, M.D., F.R.C.S., M.A., D.C.L., LL.D., Emeritus Professor of Surgery, Durham University; and CHARLES F. M. SAINT, C.B.E., M.D., M.S., F.R.C.S., Professor of Surgery, Cape Town University. Bristol: John Wright and Sons, Ltd. 1925. Pp. 347. 15s.

IT is always difficult for the student beginning clinical work to discover any order in the seeming chaos of surgical knowledge. Indeed, so little is really known of disease that it is not yet possible to generalise very much or indeed to build up any logical science, stage by stage, as is possible in the more exact realms of knowledge which the student has studied in his preliminary courses. Prof. Morison has grasped the difficulties of the student and has made the path easier by pointing out how it is often possible to argue by analogy from one surgical condition, and predict the course of events in another apparently quite unrelated. Prof. Saint has been responsible for an added section in which the principles enunciated in the first edition are amplified and illustrated. No book could be read with more profit by the student new to clinical work, and this second edition will assuredly be welcomed by him.

*Surgery of the Stomach and Small Intestine.* By J. SHELTON HORSLEY, M.D., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. London and New York: D. Appleton and Co. 1926. Pp. 325. 21s.

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### HEALTH OF THE WORKERS.

By Sir THOMAS OLIVER. London: Faber and Gwyer, Ltd. 1925. Pp. 220. 2s. 6d.

THIS small volume is intended to meet the needs of all members of the community, not merely those of our professional colleagues. In size it is little more than a pocket-book; but the author has condensed into its ten chapters a vast amount of interesting and useful information. Throughout the modern view of industry is presented—viz., that occupation should be health-giving, and that no man's occupation should be a menace to his health or a risk to his life. How far industry falls short of this ideal is set forth, and how the ideal may be attained is pointed out. Sir Thomas Oliver has himself taken no small part in ameliorating the lot of the worker and in minimising many of the risks to which in the past he was exposed, particularly in regard to miners' phthisis and lead poisoning. Short but clear accounts are given of many different occupational diseases; the facts stated may generally be accepted as accurate.

We commend this book especially to panel practitioners working in industrial districts.

### THE ASSAYING OF BRABANTIUS AND OTHER VERSE.

By C. S. SHERRINGTON. London: Oxford University Press. 1925. Pp. 67. 4s. 6d.

Prof. Sherrington publishes a slender collection of verse much of which has already appeared in the *Oxford Magazine*. He uses in the small selection a good many metres with facility, showing command of vocabulary and simile; nor are the poems a direct reflection of the work of others, as must so often happen with the poet whose main work lies outside the strict business of literary construction and expression. On the contrary, in an austere and picturesque way he is quite original as well as often melodious. The little volume closes with a quintette of sonnets in which he shows himself able to write of large things within the limits so straitly laid down by the form, and one of these, entitled "Speech," is notable in this way. Prof. Sherrington takes his place rightly among a growing group of medical men who have turned to verse for the expression of their intimate thoughts.

### THE MOSQUITOES OF EGYPT.

By T. W. KIRKPATRICK, B.A., F.E.S., Senior Entomologist, Ministry of Agriculture, Egypt; Anti-Malaria Commission of the Egyptian Government. Cairo: Government Press. 1925. Pp. 224. Piastres 30.

THIS imposing memoir is a much more serious contribution to medical entomology than its title would leave one to believe. In scope it reaches far beyond the confines of the country with which it deals; not only are the anatomy, morphology, and habits of the imago, larva, and pupa accurately described, but the classification and the somewhat ponderous synonymy, which have burdened this branch of entomology, are, it is hoped, finally unravelled. In fact, we know of no other publication of its size which deals with the subject so exhaustively. The clearness of the type, the exact and beautifully executed line drawings (the work of Mr. Eugène Kassessinoff), which are grouped together for the most part in 24 plates forming an appendix to the volume, are specially to be commended. The arrangement of the subject-matter is logical and there is a complete index. We congratulate the author, the Ministry of Agriculture, and the Government Press of Cairo on producing such an excellent piece of work.

### MAISTRE WACE.

A Pioneer in Two Literatures. By J. H. PHILPOT, M.D. London: Methuen and Co., Ltd. 1925. Pp. 155. 7s. 6d.

Dr. Philpot, already known as a novelist under the name of Philip Lafargue, has here given us a charming little study of some of the work of a writer who is almost unknown except to specialists. Maistre Wace was an Anglo-Norman poet, born in Jersey in the first decade of the twelfth century, who wrote the Roman de Brut, a history of the British kings from the time of King Arthur, and as a continuation, the Roman de Rou—namely, the history of the Dukes of Normandy and the Norman Conquest. Wace is probably forgotten by most people as the author of the Roman de Brut, but not very long after his death the poem was expanded by Layamon into his Brut, one of the landmarks of English poetry. The Roman de Rou, however, about the time of Richard II., began to be forgotten, owing to Norman French becoming a dead language, and it was not until the seventeenth century that the antiquary Duchesne copied out the first part of the poem. It was not printed until 1827, when Mr. Pluquet issued an edition at Rouen, and 50 years later a German scholar, Dr. Andresen, issued an show in individual development and in evolution. A tumour may in this way be a tentative organ which has somehow been able to evade the normal coöperative control of the body; it may succeed in the individual and kill him, or it may succeed phylogenetically and make a new gland. In one point this view has much to commend it, for it regards tumour formation as an almost normal process and therefore in posing the question of the cause of cancer it asks: Why does not everybody have cancer? instead of the customary, Why do some people have cancer? It gives, that is, particular attention to the mechanism which prevents all epithelia from growing cancers. How far the author succeeds in establishing his hypotheses must be left to those who have the leisure to read his book. His whole idea of the relationships of the different parts of the body being one of hostility rather than of coöperation is probably wrong, and his analogy between the organism and a human society mistaken. But hardened professionals will needs be interested to see how some of their facts strike an astute and studious layman and what he adds them up to. Mr. Roberts, for instance, appreciates that splenomegalic polycythæmia is a tumour; he puts a juster value on the work of Gye and Barnard than some people have done; and he sums up the ways of science and the probable value of outside interference very well when he says: "It is hard to persuade the zealous and brilliant experimentalist that a week of reading and contemplation of other work may give greater results than a month or even a year in a laboratory, while those who might utilise the labour of others too frequently lack the scientific armament which would enable them to undertake such a task." And those who have patience will find many such spots on which Mr. Roberts has put an interesting finger.

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### HEALTH OF THE WORKERS.

By Sir THOMAS OLIVER. London: Faber and Gwyer, Ltd. 1925. Pp. 226. 2*s.* 6*d.*

THIS small volume is intended to meet the needs of all members of the community, not merely those of our professional colleagues. In size it is little more than a pocket-book; but the author has condensed into its ten chapters a vast amount of interesting and useful information. Throughout the modern view of industry is presented—viz., that occupation should be health-giving, and that no man's occupation should be a menace to his health or a risk to his life. How far industry falls short of this ideal is set forth, and how the ideal may be attained is pointed out. Sir Thomas Oliver has himself taken no small part in ameliorating the lot of the worker and in minimising many of the risks to which in the past he was exposed, particularly in regard to miners' phthisis and lead poisoning. Short but clear accounts are given of many different occupational diseases; the facts stated may generally be accepted as accurate.

We commend this book especially to panel practitioners working in industrial districts.

### THE ASSAYING OF BRABANTIUS AND OTHER VERSE.

By C. S. SHERRINGTON. London: Oxford University Press. 1925. Pp. 67. 4*s.* 6*d.*

PROF. Sherrington publishes a slender collection of verse much of which has already appeared in the *Oxford Magazine.* He uses in the small selection a good many metres with facility, showing command of vocabulary and simile; nor are the poems a direct reflection of the work of others, as must so often happen with the poet whose main work lies outside the strict business of literary construction and expression. On the contrary, in an austere and picturesque way he is quite original as well as often melodious. The little volume closes with a quintette of sonnets in which he shows himself able to write of large things within the limits so straitly laid down by the form, and one of these, entitled "Speech," is notable in this way. Prof. Sherrington takes his place rightly among a growing group of medical men who have turned to verse for the expression of their intimate thoughts.

### THE MOSQUITOES OF EGYPT.

By T. W. KIRKPATRICK, B.A., F.E.S., Senior Entomologist, Ministry of Agriculture, Egypt; Anti-Malaria Commission of the Egyptian Government. Cairo: Government Press. 1925. Pp. 224. Piastres 30.

THIS imposing memoir is a much more serious contribution to medical entomology than its title would leave one to believe. In scope it reaches far beyond the confines of the country with which it deals; not only are the anatomy, morphology, and habits of the imago, larva, and pupa accurately described, but the classification and the somewhat ponderous synonymy, which have burdened this branch of entomology, are, it is hoped, finally unravelled. In fact, we know of no other publication of its size which deals with the subject so exhaustively. The clearness of the type, the exact and beautifully executed line drawings (the work of Mr. Eugène Kassessinoff), which are grouped together for the most part in 24 plates forming an appendix to the volume, are specially to be commended. The arrangement of the subject-matter is logical and there is a complete index. We congratulate the author, the Ministry of Agriculture, and the Government Press of Cairo on producing such an excellent piece of work.

### MAISTRE WACE.

A Pioneer in Two Literatures. By J. H. PHILPOT. M.D. London: Methuen and Co., Ltd. 1925. Pp. 155. 7*s.* 6*d.*

DR. Philpot, already known as a novelist under the name of Philip Lafargue, has here given us a charming little study of some of the work of a writer who is almost unknown except to specialists. Maistre Wace was an Anglo-Norman poet, born in Jersey in the first decade of the twelfth century, who wrote the Roman de Brut, a history of the British kings from the time of King Arthur, and as a continuation, the Roman de Rou—namely, the history of the Dukes of Normandy and the Norman Conquest. Wace is probably forgotten by most people as the author of the Roman de Brut, but not very long after his death the poem was expanded by Layamon into his Brut, one of the landmarks of English poetry. The Roman de Rou, however, about the time of Richard II., began to be forgotten, owing to Norman French becoming a dead language, and it was not until the seventeenth century that the antiquary Duchesne copied out the first part of the poem. It was not printed until 1827, when Mr. Pluquet issued an edition at Rouen, and 50 years later a German scholar, Dr. Andresen, issued an edition with a valuable introduction and notes, which edition is the one Dr. Philpot has used for the purposes of an essay which all those interested in the history of their country should read. With much of the matter of the poem many of the more senior among our readers will probably be familiar, from Miss Yonge's delightful study, the Little Duke, otherwise Richard the Fearless, son of William Longsword and grandson of Wace's "Rou," who was Rolf, Duke of Normandy. One passage of the Roman de Rou is famous as being the most complete account of mediæval nautical matters which we have, though some of the technical terms are difficult to understand. Dr. Philpot gives a translation of the passage on p. 56 et seq., though he confesses that he is not satisfied with it. Those who would like to make a further attempt will find the original in the appendix, p. 143. In view of the possible appearance of a second edition we may note that the page references in the Table of Contents do not correspond with the page numbers in the body of the book until we come to the appendix.

Dr. Philpot's essay is one which should send its readers to the original for further information.

## JOURNALS.

Transactions of the American Association of Genito-Urinary Surgeons. Vol. XVIII. (Williams and Wilkins Company, Baltimore, Maryland).—This volume contains the papers and reports of discussions at the meeting of the Association held last May. A great variety of subjects has been dealt with. Dr. C. H. Chetwood has given a very complete review of stenosis of the bladder neck, a condition to which various labels have been attached—*prostatisme sans prostate*, atrophy of the prostate, and chronic contracture of the bladder neck. In summing up our knowledge of the condition, he states that contracture of the vesical neck is a term that embraces a variety of conditions having in common one principal feature—namely, obstruction to the urinary flow of the bladder outlet. In his opinion this obstruction may be congenital or acquired, and in the acquired condition inflammation plays an important rôle.—Dr. J. R. Caulk treats the same subject and deals more particularly with the use of the cautery punch as a remedy for prostatic obstruction. Dr. Caulk has found greater and greater scope for the use of his instrument, whereas in 1920 he considered that only 14 per cent. of cases of prostatic obstruction were amenable to treatment by the punch; during the last year he has employed this method of treatment in 63 per cent. of his patients.—Dr. H. G. Bugbee considers that in many cases that can be treated by means of a punch operation suprapubic drainage is a useful preliminary.—Dr. H. L. Kretschmer and Dr. Nathaniel B. Rathbun deal with strictures of the ureter, and Dr. J. L. Crenshaw and Dr. D. W. Mackenzie with bladder growths.—A full account of the treatment of urological infections by means of intravenous injections of mercurochrome and other urinary antiseptics is given by Dr. H. H. Young and Dr. J. A. Colston. They consider that, although none of these drugs act as a specific, valuable results have been obtained, especially with mercurochrome. Even although unexpected failures have occurred they consider that the sum total of results obtained are brilliant, and that a urological therapy of great importance has been opened up by the use of intravenous injections of urinary antiseptics.—Dr. W. F. Braasch and Dr. H. C. Bumpus, while less enthusiastic in their statements, endorse the value of intravenous chemotherapy in the treatment of urinary infections. But Dr. A. C. St. George, in describing the post-mortem examination of five cases of sepsis treated with mercurochrome, utters a note of warning. Whatever its value as an antiseptic, he points out it must be remembered that mercurochrome is a toxic drug and that the margin of safety between a therapeutic and a toxic dose is variable and small.—Other articles of interest are furnished by Dr. H. Cabot and Dr. F. S. Patch on the operative treatment of malignant kidneys and typhoid infection of the kidneys respectively.

# Reports and Analytical Records.

## (1) DIAL, LIQUID AND AMPOULES; (2) CIBALBUMIN; (3) DIOCAINE.

(Clayton Aniline Co., Ltd., Pharmaceutical Department, London, E.C. 4.)

(1) *Dial, Liquid and Ampoules.*—We have on previous occasions pointed out the hypnotic-sedative properties of Dial (diallylbarbituric acid) and its derivatives, and the properties of these drugs are so well known to the medical profession that it is unnecessary to go over the old ground. Up to now Dial has been available in tablet form only, but Dial liquid compound, each c.cm. containing 1½ gr. of Dial, for oral use, and ampoules, each containing 3 gr. of Dial, for hypodermic use, are now available. Dial has been used with special value among mental patients as a hypnotic, restoring the sleep habit effectively while the dose can be gradually reduced.

(2) *Cibalbumin* represents an aqueous and limpid solution of egg albumin which is aseptic and free from ferments and undesirable salts. The hypodermic, intramuscular, or intravenous injections of even large therapeutic doses have always been well tolerated, and symptoms of anaphylaxis or collapse have never been observed after the administration of doses appropriate to the case under treatment. Consequently this preparation would appear to be indicated in non-specific protein therapy. The mode of action of proteins is not clear, but their employment is receiving closer attention as the value of colloidal therapy becomes known to a wider circle of medical men. Cibalbumin has been introduced to provide a uniform permanent preparation of exact dosage with which to obtain reactions which manifest themselves only in definite proportion to the dose, and the manufacturers have obtained evidence that the resulting excitation is not excessive or dangerous. The range of conditions in which it has been recommended is very large, but it is clear that protein therapy should not be employed in patients whose general condition is bad, and a note from the pharmaceutical department of the manufacturers properly suggests that in neurotic subjects or in those who have developed certain therapeutic idiosyncrasies it should not be employed.

(3) *Diocaine* (para - diallyl - oxyethyl - diphenyl - diamidine) consists of a colourless powder melting at between 152° and 153° C., and soluble in water and alcohol. It has been found useful as a local anæsthetic in ophthalmology. There is medical authority for the claim that instillations are painless and non-irritant, while the anæsthesia produced sets in rapidly and is lasting. Diocaine substance is available in vials containing 0·5 g.

## ANGIOLYMPHE.

(Charles Zimmermann and Co. (Chemicals), Ltd., 9 & 10, St. Mary-at-Hill, London, E.C. 3.)

This preparation is stated to constitute a new treatment for tuberculosis "essentially different in its origin and effect to tuberculin or gland therapy." It is a vegetable remedy and the results of clinical trials must be awaited before any expression can be made on its merits, but a report has appeared in the *British Journal of Tuberculosis* from Dr. Jane Walker giving the results following over 1000 injections administered to 20 patients. The value of persistence is considered an essential point in the treatment irrespective of whether the patient appears to improve at first or not, considerable stress being thus put both upon the attention of the practitioner and the patience of the subject. The preparation has been employed in the treatment of lupus both in Paris and Charlottenburg. There appears to be nothing dangerous in the administration of the drug, but it need hardly be said that it should only be used under the strictest medical supervision.

# THE LANCET.

*LONDON: SATURDAY, FEBRUARY 27, 1926.*

## DR. AXHAM'S APPEAL.

It is hardly surprising that the Executive Committee of the General Medical Council, when it met last Monday, should have decided not to call a special meeting of the Council for the purpose of considering the restoration of Dr. Axham's name to the professional roll, inasmuch as no such special meeting has been held since 1903, when an important discussion on medical education was adjourned from May until July in order to ensure opportunity of full and frank consideration. The Executive Committee of the Council is a body of 12, without counting the President of the Council, who acts as Chairman. It consists at this moment, in addition to the President, of the representatives of the Royal Colleges of Physicians of London and Ireland, and of the Royal Colleges of Surgeons of England, Edinburgh, and Ireland, the representative of the University of Birmingham, a Privy Council representative from respectively England, Scotland, and Ireland, two of the English and the Scottish direct representatives. Such a body —*and every member attended the meeting*—cannot fail to have seen all the professional aspects of the case, while they are aware, far more fully than are the newspapers commenting upon their decision, of all the circumstances of the case, both precedent and immediate. They have been able to appreciate exactly how far the interests of Dr. Axham have been advanced to further those of others, while they are bound to look at his case strictly in connexion with the duties of the Council as a whole in respect of the Medical Acts, remembering that appeals for restitution to the Register are likely to come before the Council at every session and that special sittings would break alike the financial resources of the Council and the available leisure of its members. It may be argued that Dr. Axham's is an exceptional case, but the fact that he waited 15 years before making his appeal for restitution surely relieves the Council from the responsibility of taking immediate and unusual action.

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## PRIVATE PRACTICE AND PREVENTIVE MEDICINE.

The Annual Oration of the Hunterian Society was delivered on Monday last by Sir George Newman, who took for his subject the part played in the development of preventive medicine by the private practitioner, and was able to show that, for over 200 years, what may be called hygienic prophylaxis has largely depended for its progress upon the wisdom and enterprise of individual doctors, drawing for their justification of procedures upon personal experience of disease and therapy. From this point of view the dates in the lives of the two Hunters, and notably in the case of John, will be seen to coincide in a striking manner with medical developments taking place at far off centres and resulting from widely different schools and schemes of work. This was well illustrated by Sir George Newman in a list of collateral medical events, from which we note that John Hunter was born just as Isaac Newton died, and was a link with the wonderful scientific developments of 1685; that William Hunter came to London in the year of the highest mortality of the eighteenth century, when the public and the doctors were alike shaken in their optimism; that John Hunter followed him just as Haller's "Physiology" was published, blending the scattered and often pedantic teachings of the past with the broad and living views of to-day; and that John Hunter was elected to the Royal Society in the same year that Sir George Baker identified lead in the cider presses as the cause of "the endemical colic of Devonshire," and laid down the pattern upon which inquiries into food contamination are still conducted. John Hunter, again, was in the full course of his lectures on surgery in the very period that the discoveries of oxygen and nitrogen made the problems of respiration comprehensible; he died just before the publication of Jenner's work on vaccination. Other interesting coincidences could be drawn from the parallel lists of dated events with which Sir George Newman supplied his audience, all going to show that the feature of medical practice in the eighteenth century was the range of widely separated work that was being brought together for collation and sifting—verily the exact hour for the arrival of John Hunter.

Upon scientific discoveries emanating from such widely different sources the practitioners of the eighteenth century laid the foundations which their successors have used in the development of the accepted routine and teaching of medicine generally; but the Hunterian Orator was able to show that, while doing so, they were in a special sense the pioneers of preventive medicine. The appalling mortality among certain classes of the population urged them to explore the circumstances of epidemic disease with the result that much of the influence of external environment in its causation became clear to them as well as the value of notification and the necessity of attacking systematically the problems of infantile mortality. The drunkenness of the second half of the eighteenth century is notorious; artists like Hogarth, authors like Smollett, a doctor, and many great divines drew attention to the shameful profligacy and degradation resulting from excessive drinking; and the doctors reacted to the message and insisted, for their patients, upon a restriction of spirit-drinking, advocating at the same time improved dietaries and a wider use of vegetables, fruit, tea, and coffee. Foul domestic conditions became recognised in particular association with disease, because the doctors of the eighteenth century pointed them out, and they were the first to think of the wage-earner in connexion with industrial welfare schemes. It was the individual knowledge of these men in regard to the way that many of their patients had to live that led the public to realise the necessity for the establishment of hospitals and dispensaries, alike to provide institutional care and protection for the sick and to be centres of medical education. We can well echo Sir George Newman's summary of these and other achievements of the eighteenth century doctors: "Epoch-making as that period was in anatomy, physiology, and the new principles of surgery as expounded and interpreted by the scientific giants of the century . . . it was still more far-reaching in the sphere of preventive medicine, which not only extended the frontiers of life for many persons then alive but laid the foundations of the public health system of the succeeding century." These things were brought about by private practitioners, the general conception of prevention arising out of a massing together of the clinical study, experience, and wisdom of individuals.

Sir George Newman closed his address by pointing out, appositely all will allow, that the creation of special medical services, in the realm of preventive medicine and elsewhere, while it has produced a new general order of things, leaves the individual practitioner still serving in the first line of defence against disease, and therefore as a pioneer in preventive medicine. The allegation that the public medical services are designed to exclude the private practitioner is no longer made by thinking people: but it is well that we should be reminded that the Poor-law Medical Service has 4000 medical officers for outdoor medical relief, nearly all of whom are private practitioners; that the Post Office has a list of 3500 private practitioners on its staff; that a large proportion of medical officers of health and medical men engaged by local education authorities are still private practitioners, and only 350 are whole-time officers; and that the same is the case with all the certifying factory surgeons. The working of the National Insurance service, therefore, forms only a portion of the official duties of private practitioners; but it is here Sir George Newman thinks that the practitioners of the twentieth century may use the legacies of the past to the greatest advantage, with their wider opportunity for the observance of early disease, and, accordingly, their increasing chances of ascertaining causes and of planning the appropriate methods of prevention.

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## MORPHINE AND HEROIN ADDICTION.

We print elsewhere a section from the report of the Departmental Committee on Morphine and Heroin Addiction dealing with precautions to be observed by practitioners in administering those drugs. Hardly less important are the Committee's conclusions in respect of various proposals made by the Home Office for the tightening up of legislative restrictions. The existing Dangerous Drugs legislation (more particularly Article 11 of the Regulations made under Section 7 of the 1920 Act) declares that the duly qualified medical practitioner is authorised to possess or supply the drugs only "so far as is necessary for the practice of his profession." The registered dentist, registered veterinary surgeon, or research worker is subject to a like limitation. In each of these cases the Home Secretary can revoke the authorisation if the person so authorised is convicted of an offence against the Act. The Committee deprecates this insistence upon a prior conviction in the police-court. It proposes an alternative likely to be more acceptable both to the medical profession and to the Home Office. The proposal is that the law should be altered and that a suitably constituted medical tribunal should advise the Home Secretary as to withdrawal of authorisation. It is suggested that there should be one tribunal for England and Wales and another for Scotland. Each should consist of a medical member appointed by the General Medical Council, another appointed by the British Medical Association, and a third appointed in England by the Royal College of Physicians of London, and in Scotland by the similar body of Edinburgh. The present legal assessor to the General Medical Council might be appointed assessor to the proposed tribunals. The issues in these cases are essentially medical—i.e., whether there was or was not justification for administering a particular drug. It would clearly be helpful to have a uniform standard of decisions rather than that the standard should vary with every bench of magistrates up and down the country. Undoubtedly, too, the tribunals would collect valuable information. The cases which would call for decision would be those of a doctor administering or supplying drugs to other persons or to himself. In the latter class of case the tribunal would be all the more preferable to the police-court. Elsewhere in the report it appears that the Home Office asked the Committee to say whether the law should require the names of doctor addicts to be supplied to wholesale chemists so that the latter might inform the Home Office of purchases made by such doctors. This rather far-reaching proposal was wisely negatived.

On the question of improper prescribing there has always been a doubt of the Home Secretary's power of control. The Committee proposes that, to remove the doubt, it be definitely enacted that dangerous drugs shall not be prescribed except bona fide for medical purposes, and that cases of improper prescribing by doctors be referred to the medical tribunals in the same manner as those of improper possession and supply. Another suggestion was that medical practitioners administering heroin or morphine should be obliged to notify the central authority. The obligation would assist the Home Office to detect instances in which a patient obtains the drug from two or more doctors concurrently; it would also indirectly diminish supply in doubtful cases, would strengthen the doctor's control over his patient, and would relieve the profession from irksome inquiries which at present are unavoidable. But compulsory notification is open to the grave objection of imperilling the confidential relations of doctor and patient. The Committee is content to advise that, instead of compulsion, a doctor should, in his own as well as his patient's interests, inquire from the patient as to the sources of supply of the drug and as to the names and addresses of any other practitioners consulted. Yet another proposal was that in certain circumstances a second medical opinion should be compulsory. Here again the Committee prefers the voluntary principle. It considers that the profession might voluntarily adopt the rule that it is highly advisable to have a second opinion in serious drug cases just as at present in certain operations (for example, the emptying of the pregnant uterus) a rule has in effect been established. If a patient cannot afford a second opinion the Ministry of Health would be prepared to lend the services of its regional medical officers. In considering possible changes of the law, the position of the non-dispensing doctor was not overlooked. Doctors who dispense have to keep a record not only of dangerous drugs purchased, but also of those supplied otherwise than by personal administration. The non-dispensing doctor has hitherto escaped, but the Committee thinks he might reasonably be asked to keep some simple record of his purchases, if only by pasting his invoices into a book. From time to time coroners and others have recommended enlarging the scope of the Dangerous Drugs Acts. The Committee does not think there is much danger of addiction arising from any preparation at present outside the Acts except, perhaps, chlorodyne. Some witnesses favoured the compulsory establishment of a definite standard of morphine content in the case of chlorodyne and advocated such a standard as would automatically bring the preparation within the Acts. The Committee came to the conclusion that there might be some advantage in securing that no preparation should be sold as chlorodyne which contained more than 0·1 per cent. of morphine. It found no evidence of any need to bring all morphine preparations within the Dangerous Drugs Acts or to lower the standard of strength at present fixed. It will be remembered that, a year ago, the Geneva Conference had something to say as to the scope of legislation, and that last August the Dangerous Drugs Act of 1925 gave effect in Great Britain to the international agreement to abolish the former limit of one-tenth per cent. in respect of heroin, which had previously been embodied in Section 8 (1) of the Act of 1920. All preparations of heroin are therefore now within the Acts without distinction of percentage.

On other and more general questions the Committee's report is reassuring. The Dangerous Drugs Acts and Regulations are having a restrictive effect of demonstrable significance. Addiction to morphine or heroin is reported to be rare in England and to be growing rarer. Addiction, it seems, is more readily produced by the use of heroin than by that of morphine, and heroin addiction is the harder to cure. The most important predisposing cause of addiction is inherent mental or nervous instability. Other predisposing causes are chronic pain or distress, insomnia, overwork, and anxiety. Often, it appears, addiction has resulted from previous use of the drug in medical treatment; special care is needed in the case of young patients. One witness of wide experience told the Committee that some practitioners were too cautious and administered the drug too late, with the result that, when at last it was given, the patient was so worn out and the relief so intense that the danger of addiction was all the greater. In so far as addiction is due to self-treatment to relieve pain or to the influence and example of other addicts or to indulgence out of curiosity or bravado, it is likely to diminish in the future under the restriction of modern legislation. The Committee examined evidence of the relative values of different methods of treatment, the abrupt withdrawal method, the rapid withdrawal, and the gradual withdrawal. The last of these was considered more generally suitable and more free from risk, entailing less strain upon the patient, and unattended by collapse. Clearly, however, there is no room for excessive optimism. With two exceptions the most sanguine witnesses did not claim a higher proportion of lasting cures than from 15 to 20 per cent. Permanent cure is the exception, relapse is the rule. More successful results could be obtained if this country possessed more institutions where special treatment was available, and if addicts could be compelled by law to undergo such treatment.

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AMONG the 15 candidates recommended by the President and Council for election to the Fellowship of the Royal Society are several workers in medical or allied science. The recent work of Dr. J. A. Arkwright at the Lister Institute of Preventive Medicine on the filterable virus of foot-and-mouth disease was the subject of a leading article in THE LANCET of Feb. 6th. Dr. E. J. Butler has been director of the Imperial Bureau of Mycology at Kew since 1920. Lieut.-Colonel S. R. Christophers, of the Central Research Institute at Kasauli, India, has made valuable practical investigations into the scourge of malaria. Dr. H. Hartridge is a lecturer in the special senses and senior demonstrator in physiology in the University of Cambridge. University College, Reading, is honoured in the person of Dr. F. J. Cole, professor of zoology; and Liverpool will rejoice at the distinction to be conferred on Prof. W. C. M. Lewis for his researches in physical chemistry.

# Annotations.

*"Ne quid nimis."*

## SHORT WEIGHT AND MEASURE.

SOME years ago the Board of Trade directed the adoption of the thermal unit for the supply of gas for domestic purposes, and since that time no consumer has paid unwittingly for nitrogen or other inert matter which may be contained in the gas supplied to him by the approved company. Thermic value is not the only property of the domestic gas supply which matters to the consumer, though it is the most obvious: in regard to the important matter of food supply caloric value is the most prominent factor, and in the new dietary which has recently been worked out by the Army Medical Department for the British soldier the caloric values of protein, fat, and carbohydrate have been carefully regulated and the total number of calories brought up to an agreed figure. The Food Council, which has just presented its report to the President of the Board of Trade,[1] does not go so far as this, but it does propose that certain specified foodstuffs, including a large proportion of the staple foods, should in future be retailed exclusively by net weight. As the law stands at present it is quite legal, except in the case of bread and tea, to sell any foodstuffs by gross weight—that is to say, that the weight of the wrapper or container is included as part of the weight of the commodity demanded. The vendor's weighing-machine is already inspected under existing legislation and its accuracy controlled, but there is a curious misapprehension current that the placing of a counter-weight in the weight pan is illegal, and the Food Council thinks it should be widely known that the practice is not only legal, but has much to recommend it. The short weight arising from this and other causes may be and probably is individually quite small, but a series of individually small deficiencies in weight or measure on the housewife's weekly budget becomes considerable, and the Food Council had instances before it in which short weight and measure resulted in the housewife paying 8½d. per quart for milk instead of 7d., 1s. 11d. for meat instead of 1s. 8d., and 2s. 9d. for butter instead of 2s. 6d. Apart from the Edinburgh Corporation Act, it has been found almost impossible to obtain a conviction even for the persistent giving of short weight and measure; unless the inspector actually sees the weighing or measuring operation and can prove that the fraud in the weighing or measuring was wilfully committed, conviction has not followed. The Food Council therefore now recommends that legislative effect should be given in the present session of Parliament to its recommendation that meat, butter, cheese, cereals, sugar, coffee, jam, and potatoes (to name the headings only of a long list) should be retailed exclusively by net weight unless sold in quantities less than two ounces or in single pennyworths or less. It goes further than this and recommends that most of these foodstuffs should be retailed only in quantities of two ounces, four ounces, eight ounces, one pound or multiples of one pound. It is a sinister fact that many food products now on the market are put up in 15-oz. packets. The quantity may be plainly stamped on the package to protect the vendor, but undoubtedly people get into the habit of regarding these packets as pound packets, and in some cases the contents have actually been a pound at first and have later been reduced to 15 oz. The Council had before it much similar evidence of jam pots which could only contain 11 oz., of milk bottles, many of them something under one pint in content, and so on. Large retailers admitted that they were unable to face the wholesaler who did not give them the quantity he purported to sell. That being so, how futile [illegible] the report, is it to expect that the housewife defend herself against traders who give short weight and measure. The report leads up to the main recommendation, that the giving of short weight and measure should be a statutory offence applying to wholesale trade as well as to retail trade, and that the powers of administration of the new Act should be vested in local authorities at present administering the Weights and Measures Acts. There seems no reason why the recommendations should not work smoothly. The principles are the same as in the case of bread and tea where the object has been obtained without friction and without giving rise to increase in the cost of living or the production of unemployment, which have rather absurdly been claimed as likely to result from the honest proposals. The modest protection to the purchaser given by the suggested Act should become law in the present session of Parliament.

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[1] Report by the Food Council on Short Weight [illegible] in the Sale of Foodstuffs. Cmd. 2551. 1926.

## ACUTE POISONING TREATED BY LUMBAR PUNCTURE.

A CARDINAL principle in the treatment of accidental poisoning is to hasten the elimination of the poison by every available channel. In poisoning by alkaloids venesection followed by intravenous infusion of normal saline solution has often been found useful. Lumbar puncture has recently been tried with the same end in view. At a meeting of the Vienna Medical Society Dr. F. Redlich discussed the methods used in the third medical clinic for the treatment of severe poisoning, chiefly in cases of attempted suicide. Within the last two years this clinic has had over 160 cases of the kind with 21 deaths. These included 25 attempts with veronal with 11 deaths, and Dr. Redlich has treated 13 cases of poisoning due to this drug by lumbar puncture. The cases chosen were those which were severe, but not actually moribund. The quantity of poison ingested was known only in two cases, and in these at least 5 g. (i.e., some 80 gr.) of veronal had been taken. Both recovered, as also did two other patients. In 12 cases the cerebro-spinal fluid was tested for veronal, and out of nine cases reported positive seven died; out of three cases reported negative one died. Luminal, corrosive sublimate, and lysol were also detected in the cerebro-spinal fluid in various cases, so that Dr. Redlich feels justified in recommending repeated and extensive removal of cerebro-spinal fluid in poisoning. It is, he considers, a safe method of removing part of the poison from the body, and especially from that system most susceptible to its action—the central nervous system. Other treatment is not, of course, neglected, including cardiac stimulants, stomach washes, and injections of strychnine and lobeline.

## A PHYSICAL STUDY OF MEDICAL PERCUSSION.

Dr. A. Gilbert, Dr. A. Tzanck, and Dr. R. A. Gutmann, writing in the *Paris Médical* of Jan. 9th, point out that the classical accounts refer to the medical percussion note as having three qualities—namely, intensity, frequency, and timbre—and they instance the diversity of opinion amongst clinicians as to the relative importance of these qualities. Their own view is that there is a fundamental difference between musical notes and noises, that there is usually complete similarity between the conditions required for producing *noise* and those obtaining in medical percussion, and that while analysis of sounds in general shows the three qualities mentioned to be intrinsic properties of musical notes, resonance (*sonorité*) may be set up in the "acoustic field" by both musical sounds and noises. Details are given of an arrangement whereby a perforated band is made to pass over the aperture of a tube through which air is blown in a steady stream. When the perforations are regularly spaced a note is produced which rises in pitch with increasing speed of the band. On the contrary, when the perforations are irregularly spaced, no alteration in pitch can be obtained, the sound produced being a pure noise. By means of another instrument, the phonoscope of Weiss, the authors obtained photographic records of different sounds. These tracings show clearly the rhythmical nature of all musical sounds whether consonant or dissonant, as opposed to the isolated nature of noise vibrations. Only in the case of a cavity freely communicating with the outside air can a percussion sound be properly considered musical, when the terms intensity, frequency, and timbre can be applied. On this view Wintrich's percussion sign is dependent on the difference between a musical note and a noise, not, as is usually taught, on alteration of the pitch of the note. Percussion reveals two things—the presence or absence of gas in the subjacent tissues and the physical relationship of gas to tissue. The presence of gas leads to resonance, its absence to dullness. In normal lung the gas must be considered as existing in small compartments not in free communication with the outside air. Evidence is put forward to prove that, when gases are thus pent up in the tissues, a state of hypertension obscures the resonance to percussion, while relaxation leads to a Skodaic note, even if the quantity of gas be small. A tabulated list of the different degrees of resonance and the clinical conditions with which they are associated concludes a paper which is a valuable addition to our knowledge of the physical basis of percussion sounds.

## A PROBLEM IN STATE MEDICINE.

THOSE persons who complain about any State interference with the relationship between doctor and patient and those who favour a whole-hearted scheme of State medicine will alike find much of interest in the present situation in America as set out in a recent issue of the *Journal of the American Medical Association*. As a result of the World War Veterans' Act of 1924 any ex-Service man who served in any campaign since 1897 is entitled to treatment and care in hospital at the Government's expense, no matter what the origin of his complaint, no matter what its nature, and no matter what his capacity to pay may be. All that the applicant has to do is to prove illness or injury and then enter a Government institution for treatment by Government physicians and surgeons. The fact that the illness or injury bears no relation to any military service, being neither caused nor aggravated by this, does not enter into the matter at all. These provisions came into force in June, 1924, and in the first financial year their estimated cost works out at a sum exceeding one million pounds. With the gradual spread of knowledge among ex-Service men this demand on the American taxpayer is likely to increase in future years, while certain politicians, not content with this, are preparing Bills to extend such beneficiary treatment, under similar conditions, to Confederate veterans and to civilian workers who served overseas during the recent war. Other measures propose that not only shall hospital care be provided for any disease and disability of these members of the community, but also free medical attention and nursing for the rest of their lives. No one who admits American citizenship is likely to complain at the acceptance by his Government of responsibility for illness and disability caused or in any way aggravated by military service, even when the term "aggravated" is generously interpreted; but the treatment of disabilities not of Service origin comes into another category. It may be that in the future some Government will boldly assert that the health of the people is its prime concern and proceed to provide free medical advice and treatment for all by means of suitable taxation. Indeed, by extending the present benefits in America to cover all civilians who have worked in the Government's service at any time, to those who have helped the Government's cause by voluntary service of any approved variety, and so forth, most of the adult population would at once be covered. The immediate effect, however, of the provisions already in force is to tend to withdraw patients from the small cities and towns to the larger cities where Government treatment is available, and the American Medical Association, recognising the dangers of the situation, adopted a strong resolution at its last meeting of delegates calling on the Government to amend its War Veterans' Act. If a frank scheme of State medicine is intended there may be much that could be said for and against it, but the present situation is regarded by the medical profession in America as thoroughly unsatisfactory.

## BASE OR SALT FOR INJECTION.

THE preparation of basic bodies for subcutaneous and intravenous injection has long been a matter of debate. As a rule, alkaloids are administered in the form of soluble salts, such as hydrochlorides or sulphates, when hydrolysis occurs in the organism, with the setting free of the pharmacologically active-free base. Mr. W H Martindale suggests, in another column, it would be reasonable to suppose that if alkaloids could be administered in some form which yielded the free base more readily, the activity of the preparations should be enhanced. After a series of experiments with quinine, he has been led to believe that a compound of quinine and mannitol would be more efficacious than the hydrochloride. In this preparation the quinine is virtually in the form of free base, thus absolving the body from the necessity of performing hydrolysis. Although no clinical trials have yet been made, the author's enthusiastic thesis appears well grounded. Moreover, the same considerations would apply to substances other than alkaloids. For example, hydrochloride may not be the ideal form for administering insulin. Solutions of insulin hydrochloride are strongly acid, and it would be interesting to compare the activity of this salt with that of the free substance. There are, however, a number of immediate advantages in the use of the hydrochloride which can only be sacrificed on good cause shown.

## RECENT ADVANCES IN OBSTETRICS.

DURING the last 20 years the maternal mortality rate in childbed has not appreciably declined. The child-bearing mother, as Sir George Newman has recently remarked,[1] is not sharing equally with the rest of the population in the improved public health. Although statistics sometimes mislead, no one will deny that the persistence of this high mortality rate reflects little credit on the science of obstetrics. Many reasons have been put forward for failure, but one outstanding fact emerges—namely, that a large number of the fatalities could have been prevented by efficient antenatal supervision. Albeit the essential value of antenatal care has been known for long enough, its adoption is by no means universal, and Mr. Comyns Berkeley was not overstating his case when he said that "the majority of pregnant women in our country have no antenatal supervision of any kind."[2] We therefore warmly welcome the excellent chapter on antenatal care in Mr. Aleck Bourne's "Recent Advances in Obstetrics and Gynæcology."[3] Antenatal care, he there states, is the most important single line of forward movement of thought in midwifery during the last ten years. From the London Report on Puerperal Sepsis it appears that labour was spontaneous and normal in 22 per cent. of the fatal cases, and it is by no means certain that a number of these deaths could not have been prevented. Of the remaining cases where some form of interference during labour took place there is little doubt that the majority could have been saved. Exact scientific proof may be lacking, but clinically autogenous infection does seem to occur. It is now accepted that the vagina of the apparently normal pregnant woman may harbour streptococci. Of these, the majority are non-hæmolytic and seemingly non-pathogenic, but we are still ignorant as to the possibility of a biological metastasis of these organisms brought about by some specific factor connected with pregnancy. Mr. Victor Bonney, in his recent address published in our columns,[4] focused attention on this autogenous type of infection, and made a strong plea for the abolition before or during pregnancy of all septic foci, whether in the teeth, tonsils, or intestinal tract, as a means of preventing puerperal infection. Despite the large number of remedies advocated for the cure of puerperal sepsis none of them so far has stood the test of time, and the rational therapy of this disease has yet to be evolved. Some of the newer methods of chemotherapy have been systematically tested at Prof. Halban's clinic in Vienna, the results—largely negative—being set out in a book reviewed on p. 443. Biochemists have invested the condition of the blood and urine in pregnancy and Mr. Bourne gives an excellent résumé of their inquiry, which has established a number of isolated chemical facts awaiting coördination for practical clinical work. The toxæmias of pregnancy rank only second to puerperal sepsis as the cause of death amongst pregnant women. Third on the list comes hæmorrhage, where in a proportion of cases early recognition and hospital treatment would save life. Antenatal care would, however, prevent the majority of cases of puerperal sepsis and toxæmia, and when it is remembered that in England and Wales alone 30,000 women lost their lives during the last decade from causes directly attributed to childbirth, there is still room for advance in obstetric practice.

## A NEW JOURNAL OF CHILDREN'S DISEASES.

WE extend a hearty welcome to the *Archives of Disease in Childhood*, the first number of which has appeared this month. The new journal is issued by the British Medical Association,[5] who have been fortunate in obtaining the services of Dr. Hugh Thursfield and Dr Reginald Miller as editors. The journals already dealing with pediatrics in this country, though admirable in quality, are fewer in number than in most continental countries and in America, and there is an undoubted need of an additional medium through which, as Sir Thomas Barlow indicates in his introduction to the new issue, the numerous workers in various branches of children's disease may submit their observations for criticism and verification. The February number provides good illustration of the way in which this need is being met by the new journal, and promises much for its success. The articles which it contains are for the greater part devoted to the results of clinical research undertaken in children's hospitals. A paper by Dr. F. J. Poynton and Dr. W. G. Wyllie on hepatic cirrhosis in children offers a comprehensive review of an obscure subject. Four cases treated recently at the Children's Hospital, Great Ormond-street, are described; these cases all showed unusual features, and exemplify the difficulty of correlating clinical types of cirrhosis with particular pathogenic factors. The two familial cases, for example, were both considered on the clinical evidence to be portal rather than biliary in origin. The authors divide the cirrhoses into seven types, which are discussed severally, the morbid histology of each being illustrated by excellent photographs and colour-plates. Special attention is devoted to the biliary forms of cirrhosis, which in children are more commonly met with than those of portal distribution. These are considered under the headings of (*a*) hypertrophic, (*b*) congenital, and (*c*) obstructive biliary cirrhosis. Forms (*a*) and (*c*) are rare in this country; (*a*) and (*b*) show a remarkable tendency to familial incidence. Congenital cirrhosis may occur with or without obliteration of the bile-ducts. The pathogenesis of this form has never been fully established.

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[1] Ministry of Health Report on Maternal Mortality, 1924.

[2] Brit. Med. Jour., Jan. 2nd, 1926.

[3] J. and A. Churchill. 12s. 6d.

[4] THE LANCET, Jan. 23rd, 1926

[5] London: Brit. Med. Assoc. House, Tavistock-square, W.C. 1. Yearly subs. (six numbers), 25s. Single number 4s. 6d.

Dr. John Thomson regarding a malformation of the ducts, and Sir H. Rolleston the hepatic cirrhosis, as the primary and essential lesion. The possibility is suggested that a mild congenital case may be the precursor of a hypertrophic cirrhosis. In another article Dr. G. A. Sutherland describes, by means of polygraph tracings taken at different stages, a case of severe heart-block treated by injections of adrenalin, and discusses the rationale of this treatment The three papers describing investigations on rickets contain numerous points of interest Taken collectively they impress on the reader the extreme difficulty of standardising the diagnosis of rickets, and consequently, the reservations which must be attached to conclusions drawn from statistics of incidence All the three authors—Dr H. Mackay, Dr. D. Paterson, and Dr. R. Darby—based their diagnoses on radiographic examination of the wrist. Dr. Mackay frankly admits that the incidence of slight rickets is much higher than the radiographic diagnosis will indicate, and looks to examination of the blood as the diagnostic method of the future. Dr. Paterson and Dr. Darby found that the rickety process in the wrist was healed in the great majority of cases. Such cases could not be diagnosed with certainty as active rickets, and appear to have been regarded as inactive, yet it may be doubted if the presence of a healed focus in bone should be taken as evidence that the activity of a disease which manifests itself in so many systems has been arrested. There are a number of other contributions which will repay the reader's attention. All interested in pediatrics may expect much from future issues of the *Archives.*

## TETANUS ANATOXIN.

OUR Paris correspondent has already referred[1] to the work on active immunisation against tetanus done by Dr. Zoeller, of the Val-de-Grâce, and Dr. Ramon, of the Pasteur Institute. On Feb. 2nd they made a communication to the Académie de Médecine on their tetanus anatoxin, and a clue to its importance is to be found in the words in which Dr. Roux, the head of the Pasteur Institute, summed up his impressions. "I cannot," he said, "sufficiently congratulate the authors on their work, both from the point of view of its practical value and of its general importance to physiology." From what was said it appears that tetanus anatoxin, derived from tetanus toxin, is quite as effective an antigen as the parent substance. Tetanus toxin is very poisonous, but anatoxin can be given in large doses without provoking any reaction demonstrable clinically. Yet it confers an active immunity of permanent, or at any rate long, duration. The principles governing the conversion of toxins into anatoxins are applicable to a large group of poisons, whether they be derived from the vegetable or the animal kingdom—e.g., from bacteria, plants, or snakes. In each case a substance is obtained which is at the same time innocuous and capable of conferring permanent active immunity on the recipient. In one series of experiments Dr. Zoeller and Dr. Ramon gave a subcutaneous injection of 0·5 or 1 c.cm. of anatoxin tetanus to human beings. A month later the serum of the vaccinated was only slightly more effective than control serum in protecting guinea-pigs from a fatal dose of fresh tetanus toxin. But a month after a second injection of anatoxin the serum of the vaccinated was from one to ten times more effective than that of control serum; and eight days after a third injection of anatoxin the serum of the vaccinated was from 500 to 3000 times more effective than the control serum. It was also found that anatoxin could be given with antityphoid (T.A.B.) vaccine, without the one interfering with, or neutralising, the other. Indeed, it would seem that the reaction provoked by the antityphoid vaccine promoted the action of the anatoxin. In another series of experiments it was found that tetanus serum could be given simultaneously with tetanus anatoxin; in other words, active and passive immunisation may be practised simultaneously. As some time is required to establish active immunisation, we cannot yet dispense with the present system of passive immunisation; but the authors of this communication foresee that in future campaigns soldiers will be vaccinated with tetanus anatoxin at the same time that they are vaccinated against typhoid and paratyphoid fever. The two first injections of anatoxin can be given with the typhoid vaccine, and as soon as a wound is inflicted the soldier can be given a third injection of anatoxin, the effect of which will be very potent in a few days. The debate at the Académie which followed this communication merely served to stress its importance, and the only discord was produced by conflicting claims for priority in the discovery. Although the facts quoted are extremely interesting and may be of great general importance in the production of active immunity, it is doubtful if their application to the particular infection is of practical moment. Tetanus is, happily, so rare a condition in civilian life that its prevention by toxin inoculation is outside the range of practicability. The modified toxin may, however, prove very useful in the manufacture of antitoxin and in some kinds of veterinary practice.

## THE OPTICAL CONVENTION.

THE first Optical Convention was held in 1905; the second, and last, was held in 1912. The time indeed seems ripe for another review of the achievements of British science and industry as applied to optics, and to take note of the remarkable advances that have been made during and since the war. How great these advances are it is the object of the convention to show. In the opinion of the organisers there has never been a time of more rapid progress, and the difference between the present position of optics in this country and the position before the war is not sufficiently recognised. Great Britain, it is claimed, has gone far towards regaining her old position of leadership. The first convention, it may be recalled, met under the presidency of Sir Richard (then Dr.) Glazebrook; the second under that of the late Prof. Silvanus P. Thompson: in 1926 the president will be Sir Frank Dyson, the Astronomer Royal. The long list of distinguished vice-presidents is suggestive of the number of sciences concerned in the advance of this key science of optics, and is also a guarantee that the convention will be of wide interest as well as of importance to specialists. The programme gives the same assurance. Apart from the exhibition and lectures there will be a large number of papers on scientific and technical subjects, included under the headings of optical theory, history and education, optical glass and the manufacture of optical elements; astronomy, microscopy, spectroscopy, and interferometry; photography, ophthalmology and spectacle manufacture; cinematography and projection; colour; photometry and illumination; surveying, including aerial surveying; and optical apparatus in the fighting services. There will also be special discourses which are to include popular lectures, and there will be a large exhibition arranged in sections called experimental and research, historical and commercial. The first section will contain exhibits by individuals, research laboratories, and institutions; the second will include the reproduction of historical experiments, whilst the third will be made up of exhibits by British manufacturing firms in all branches of the optical trade. Not even optical delusions will be neglected, and Captain Clive Maskelyne is amongst those who have promised their aid for purposes of entertainment. As before, a volume of Proceedings will be issued, and this, like the previous ones, should prove a valuable document, showing, as it will, the present state of the science in this country. The convention is to be held at the Imperial College of Science and Technology in South Kensington, London, and will last from April 12th to 17th. Applications for information or membership should be addressed to the secretary, at the offices of the convention, 1, Lowther-gardens, Exhibition-road, London, S.W. 7. The appearance of such a convention is almost as uncommon as that of a comet, and its rarity, as well as its intrinsic interest, ought to commend it to the educated public.

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[1] THE LANCET, Jan. 23rd, 1926, p. 197.

## DERWENT WOOD.

MEDICAL men will have personal reason to regret the death of Mr. Francis Derwent Wood, R.A., the well-known sculptor, which occurred at a London nursing home on Friday last as a sequel to a severe operation. Derwent Wood was a true cosmopolitan, for, born of an American father and an English mother, he was educated in Switzerland and Germany, and married a famous Australian singer; but his work as a sculptor was done in this country, where he had taught in the Glasgow art schools and in the two famous metropolitan schools, the Royal College of Art, South Kensington, and the Slade School, as well as at the Royal Academy. He was a frequent exhibitor at the Academy both of portraiture and imaginative work, was elected A.R.A. in 1910, and R.A. ten years later. During the war he became associated with medicine as a constructor of face-masks for disfigured soldiers, and in the columns of THE LANCET he described very fully the use of these masks in the mutilations of facial wounds. Disclaiming any attempt either to alleviate suffering or to restore function, he described his work as beginning where that of the surgeon is completed. It was the mental distress of physical deformity which Derwent Wood's work was designed to relieve, his cases being generally those extreme ones that plastic surgery had been compelled to abandon. The psychological effect was what he aimed at with the fullest sympathy, and many a patient behind one of these masks acquired the old self-respect and self-reliance, discarding despondency under the feeling that his presence was no longer a source of melancholy to himself nor of sadness to others. "So far as my treatment goes," the sculptor wrote in our columns, "the size of the areas affected is negligible. In theory, it is as easy to make a mask for a whole face as for a space an inch square to cover a small palpitating area such as is often done in the case of skull wounds. The essential of the treatment is the restoration of features; the features may have been originally ugly or beautiful. As they were in life so I try to reproduce them, beautiful or ugly; the one desideratum is to make them natural." On all hands Derwent Wood was allowed to be one of the finest plastic workers modern art has known.

## TRANSMISSION OF DENGUE BY MOSQUITOES.

THAT dengue is carried by mosquitoes has long been the impression of those who have suffered from both. Lieut.-Colonel J. F. Siler and two other officers of the Medical Corps, U.S. Army, have subjected the question to experiment in the Philippines, and they now report that dengue is carried by *Aedes egypti* (commonly called *Stegomyia fasciata*), the mosquito that transmits yellow fever. A brief note of their work appears in the *Military Surgeon* for January, the complete account being reserved for the *Philippine Journal of Science*. The 64 volunteers who participated in the research were soldiers recently arrived from the United States and free from disease, including syphilis. They were put to live in a military hospital in Manila, in a ward specially made mosquito-proof and kept mosquito-free. Experiments were made with two mosquitoes, *A. egypti* and *Culex quinquefasciatus*. With the latter the results were negative, but out of 111 experiments with *A. egypti* 47 were successful. The mosquitoes used were grown in captivity from the egg upwards. Fertilised females were put to bite dengue patients, and the sated insects were then allowed to bite the volunteers. Thus it was learned that a case of dengue was infectious to the mosquito from 18 hours before onset to the end of the third day of the disease. The *A. egypti* itself does not become infective for 11–14 days, but then remains so for the remainder of life, certainly up to 75 days; infection is not transmitted to the offspring. A patient, bitten by 2–10 infected mosquitoes, develops dengue in from 4–10 days, usually within six. Passage of the virus six times from man to mosquito and again to man neither attenuated nor increased its virulence. The whole research was well planned and carefully carried out, and the complete report will be awaited with interest.

# The Services.

## ROYAL ARMY MEDICAL CORPS.

Lt.-Col. and Bt.-Col. Sir E. S. Worthington retires on retd. pay.

Maj. R. G. Meredith is placed on the half pay list on account of ill health.

The undermentioned Capts. to be Majs.: T. O. Thompson, J. G. Gill, S. M. Hattersley, and J. W. C. Stubbs (Prov. and remains secd.)

Temp. Lts. J. M Johnston, R. J. G. Hyde, and A. K. J. Finch to be Lts. on probation, and relinquish their temp. rank of Lt.

R. V. Franklin to be Lt. on probation and is secd.

### ARMY RESERVE OF OFFICERS.

Capt. N. Kerr, from T.A., Gen. List, Edinburgh University Contgt., O.T C., to be Capt.

### TERRITORIAL ARMY.

C. W. F. Greenhill (late Surg. Lt., R.N.) to be Capt.

2nd Lt. T. F. Greenhill (late H.L.I.) to be Lt.

Supernumerary for Service with the O.T.C.: H. E. A. Boldero (late R.A.M.C.) to be Capt. for service with medical unit, University of London O.T.C.

J. F. Smith (late Surg. Lt., R.N.) to be Capt. for service with medical unit, University of London O.T.C.

## ROYAL AIR FORCE.

E. J. Jenkins is granted a short service commission as a Flying Officer for three years on the Active List.

Tempy. Lt. H. R. Peel, General List, Dental Surgeon Army, is granted a temporary commission as Flying Officer on attachment to the R.A.F.

## MILITARY HOSPITALS RESERVE.

The reorganisation of the "Home Hospitals Reserve," under the designation of "The Military Hospitals Reserve," has been approved and the qualifications for enrolment have been issued in an Army Order. This Reserve will consist of warrant and non-commissioned officers and privates only, with an authorised establishment of 2000. The functions of the reserve will be (*a*) to staff the military hospitals and other establishments maintained by the regular medical services upon the mobilisation and withdrawal of the regular R.A.M.C. for duty in the field; and (*b*) to provide reinforcements for the medical units of the expeditionary force overseas after mobilisation. Membership will be entirely voluntary and the personnel will be provided by the St. John Ambulance Brigade for England and Wales and Northern Ireland and the St. Andrew's Ambulance Corps for Scotland.

The age limits for enrolment will be from 19 to 40 years of age, and no member will be permitted to remain in the Reserve after he has reached the age of 45 years. Every applicant must be in possession of the first-aid certificate recognised or granted by the St. John Ambulance Association or St. Andrew's Ambulance Association, and, in addition, obtain a nursing certificate recognised by those bodies within a period of 12 months after enrolment. A proportion of the total establishment of each rank in the Reserve will, in annual rotation, receive training for eight days under military arrangements. A member of the Reserve will receive, both during training and on coming up for duty in replacement of a member of the R.A.M.C., pay and allowances at the rates laid down for a man of the corresponding army rank and trade group (if qualified) whom he has been detailed to replace on mobilisation, and promotion to fill the authorised establishment of ranks during service in the Reserve will be given according to service, merit, and qualifications.

Surg.-Maj. R. Vella, half pay list, late R. Malta Artillery, on attaining the age limit for compulsory retirement, is placed on retd. pay.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLXII.

## THE TREATMENT OF CHRONIC TONSILLITIS.

### II. Tonsillectomy in Adults and Children.[1]

### *Preparation of the Patient.*

The child or adult should be admitted to hospital in the afternoon before operation. Unfortunately, owing to the lack of sufficient hospital accommodation, most children have still to be operated upon as out-patients. The heart, lungs, and urine should be examined. Castor oil or other purgative is given at night and weak tea or bovril on the morning of operation.

### *Enucleation by Guillotine.*

The Whillis-Sluder method of guillotine enucleation is as follows: (1) The patient lies in the dorsal position with the head hanging over the end of the table or with the shoulders supported by pillows and the head fully extended in good light. (2) When the patient is anæsthetised the gag is opened. (3) The operator depresses the tongue with Lack's spatula and exposes the lower pole of the left tonsil, the surgeon's left hand holding the guillotine. (4) The ring of the guillotine is hooked round the lower pole, the blade side next to the tonsil. (5) The tonsil is now pressed from below and behind upwards and forwards over the alveolar eminence of the mandible until the anterior faucial pillar and palate bulge forwards. (6) A finger of the disengaged right hand is placed on this bulging and the tonsil pushed firmly through the ring of the guillotine. In this process the tonsil is turned outside in, or "fliped" as we say in Scotland. As a rule it goes through the ring with a distinct jerk and the tip of the finger comes in contact with the ring of the guillotine. (7) The blade of the guillotine is now pushed home. (8) With a twisting movement the tonsil is removed from the mouth on the reverse surface of the instrument. (9) The anæsthetist now inserts a swab, held in curved forceps, into the tonsillar fossa. The surgeon changes the guillotine to his right hand and enucleates the right tonsil.

The child is now rapidly turned over into the prone position so that blood may run out of the mouth and, in order to assist in the control of hæmorrhage, cold water is poured with a marine sponge over the back of the child's neck. Within about 60 seconds the child, supported by a nurse, is able to sit up on the table with its legs dangling over one side. The child is then made to blow through each nostril alternately, in order to get rid of the blood which has accumulated in the nose. By this time it will usually be found on inspection that the hæmorrhage from the tonsil fossa has ceased and the child can be carried back to bed, where it is placed well over on one side with its head supported at the edge of two pillows and the face turned downwards over a shallow basin. As a rule the patient very soon goes to sleep.

Very little in the way of after-treatment is necessary. On the day of operation drinks of cold water are all that is really necessary, though some surgeons allow ice-cream, which is very popular with the patients. Thereafter porridge and milk, custard and soft foods are given, until gradually the child returns to normal diet. A purgative is given on the second night after the operation. The patient should stay in bed for two days. On the third day the child is allowed to get up and to go home on the fourth. E. Watson-Williams has pointed out that the risk of complication is far greater if patients are sent home shortly after operation. A mild antiseptic mouthwash and gargle, such as phenol sodique, should be used for a week; 10 gr. of aspirin stirred in a tumblerful of lukewarm water and used as a mouthwash or gargle often seems to relieve the pain.

### *Enucleation by Dissection.*

Enucleation by dissection can be done in adults with the aid of local anæsthesia. The method is as follows: (1) Hypodermic injection of heroin and atropine half an hour before operation. Spray throat with 10 per cent. cocaine, taking care that patient spits it all out. (2) The surgeon sits on a high stool with his back to the window, while the patient sits in a chair facing the window. On a dark day reflected light from a forehead mirror should be used. (3) Depress the tongue and, with tonsil syringe and curved needle, inject the anterior and posterior pillars with the local anæsthetic solution (adrenalin (1–1000) ♏ 4; novocaine (1 per cent.) ♏ 60; sterile saline solution ʒ iii). Then grasp tonsil with vulsellum, pull it inwards and inject with straight needle into tonsil bed, lateral to the anterior pillar—i.e., between tonsil and superior constrictor. Lastly, the posterior palatine nerves are injected at the foramen. (4) Wait 10 to 15 minutes. (5) Insert tongue depressor and, with sickle-shaped knife held in left hand, make incision low down just behind left anterior pillar and run the knife up to junction of pillars. (6) Remove spatula and insert self-retaining depressor; grasp tonsil with uterine vulsellum, and pull it inwards while an assistant with a retractor hooks the anterior pillar out of the way. (7) With scissors curved on the flat clip around the tonsil, keeping close to the bluish-white capsule. The upper pole of the tonsil soon comes into view. Then draw tonsil forwards and snip behind it so as to free the tonsil from the upper part of posterior pillar. (8) Insert tonsil enucleator or forefinger between tonsil and fascia of superior constrictor to separate tonsil from its bed. (9) Reinsert pillar retractor and free tonsil from lower part of anterior and posterior pillars. (10) Pass cold wire snare over vulsellum and upper part of tonsil down to lower pole. Keep up traction with vulsellum and gradually tighten snare till tonsil is detached and removed. (11) Clean out tonsil fossa with swab soaked in peroxide solution and held in curved sponge-holder. Then examine tonsil bed to see that it is clean and dry. The right tonsil is now dealt with on the same lines.

In most cases there is no bleeding after the operation has been completed, but, if there is, a peroxide swab should be inserted into each tonsil fossa, while the patient continues to sit upright. Many surgeons prefer general anæsthesia—e.g., intratracheal ether—for enucleation of the tonsil by the dissection method.

### *Complications.*

*Hæmorrhage.*—Statistics vary very greatly as regards the frequence of serious hæmorrhage after tonsil enucleation. This may be explained by differences in the type of operation performed. Some surgeons say that hæmorrhage is more common after tonsillectomy than after the old slicing operation; others take the opposite view. There is general agreement, however, that severe bleeding is more common after enucleation by dissection under general anæsthesia than after the guillotine operation. This is probably because the latter is usually carried out in children. The accuracy with which cases are followed up and the personal equation are also important. Mollison had only 0·147 per cent. of hæmorrhage in 2000 cases, whereas McKinney and also Beaman Douglas reported 6 per cent. and Holger Mygind 8 per cent. The average appears to be from 0·5 to 2 per cent. Loeb has collected 62 cases in which death occurred from hæmorrhage. Vomiting of blood—altered or red—is very often the first warning that hæmorrhage is taking place. Extreme pallor and marked restlessness are other signs. As a prophylactic measure, calcium chloride may be given for two days before operation, or 10 c.cm. of horse serum may be injected. When hæmorrhage occurs the patient should sit up, supported by pillows, and light should be reflected into the mouth. A tonsil fossa full of coagulum is almost certainly the site of the hæmorrhage. The clot must be turned out and the fossa inspected to see if a piece of tonsil has been left; if so it should be removed. A swab, wrung out of hydrogen peroxide, friar's balsam, or carbolised resin, is now packed into the tonsil fossa, held there with the sponge-holder and changed as required. Usually this is sufficient to stop the bleeding. If, in spite of these measures, the hæmorrhage goes on, the bleeding vessel should be grasped with artery or tissue forceps, which may be left on for a time, or a thread ligature may be applied —often a matter of considerable difficulty. As an alternative the Watson-Williams or other form of well-padded tonsil clamps may be used. Suturing the pillars over a roll of gauze has been employed. As a last resort the patient may be made to stand up till he feels faint. In very severe cases transfusion of gum saline or of blood may be called for.

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[1] An article on the Choice of Methods in Chronic Tonsillitis by Mr. Fraser appeared last week.

*Sepsis.*—Serious septic complications following tonsillectomy are rare, though some œdema of the uvula is very common. The chief complications attributable to septic infection after tonsillectomy are pneumonia, lung abscess, and empyema. Abscess of the lung and empyema may be due to inspiration of infected material at the time of operation (here the abscess—usually in the right lung—develops within 36 hours), or to blood infection—*i.e.*, through the pharyngeal plexus to the right heart and so to the pulmonary artery. These cases are most common after dissection under a general anæsthetic in which the operation is prolonged and there is much forcible swabbing of the tonsil fossa. In these cases the abscess develops later—in from four days to two weeks. Surgical scarlet fever sometimes follows tonsillectomy and is probably due to streptococcal septicæmia.

### *Results of Tonsillectomy.*

Recurrent attacks of tonsillitis are, of course, eliminated if the tonsils are enucleated. E. D. D. Davis states that a family doctor had informed him that during 18 months after operation he had not been asked to visit any of 30 children who had had their tonsils removed, whereas before the operation his visits had been frequent. In Edinburgh it is not uncommon for a mother of her own accord to bring up to the Royal Infirmary a second and, later, a third child for operation, because she has recognised the symptoms of throat trouble and has seen the good results of operation on her first child. It is wrong to tell a parent that tonsillectomy and removal of adenoids will prevent the child from catching cold, but right to state that colds will probably be less frequent and of shorter duration.

*Local Results.*—Asymmetry or adhesion of the faucial pillars are common, but insufficiency of the palate, with cleft palate voice and return of fluids by the nose, is very rare. Dryness of the throat is sometimes complained of and is probably due to injury to the ducts of the mucous glands in the soft palate which open just above the tonsil. In singers, if the tonsil enucleation be carefully done and if the patient refrains from using the voice for two months, the results are most satisfactory. As regards chronic simple inflammatory enlargement of the tonsillar gland, Crowe reports that in 38 per cent. the enlargement disappeared after tonsillectomy and in a further 50 per cent. the glands were only the size of a pea.

*Remote Results.*—Although the tonsils are an important source of focal infection, tonsillectomy does not always bring about a cure of the disease for which the operation was undertaken. In chronic toxæmia, with lassitude, anæmia, and anorexia, the results in well-selected cases are excellent. The results of enucleation in cases of early arthritis and myositis are very satisfactory and often brilliant (30–80 per cent. cures). In cases of rheumatic fever, St. Lawrence states that 84 per cent. showed a good result; on the other hand, Hunt and Osman reported that the percentage of recurrence was much the same in operated and non-operated cases. In rheumatoid arthritis, not only are the ultimate results very disappointing, but patients may have to stay in hospital for three months before they recover from the effects of the operation.

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# Special Articles.

## BASIC QUININE AND OTHER ALKALOIDAL INJECTIONS.

BY W. H. MARTINDALE, PH.D., PH.CH.

HITHERTO it has been customary when introducing alkaloids into the tissues or into the venous circulation to employ them in the form of their soluble salts, but I think the scientific view is tenable that their therapeutic action depends almost entirely on the alkaloidal base which is liberated from the salt by the alkalinity of the body fluids. In the case of several alkaloids it has been experimentally verified in my laboratory that on mixing a solution of an alkaloidal salt with blood a considerable amount of base can be extracted by a suitable solvent. It is difficult to say who first pointed out the reaction which occurs, but Overton [1] has suggested that, in the organism, the salts of the alkaloids are split up by the alkali of the blood and lymph, their action being due only to the free alkaloids. No general clinical use of the knowledge has been made, due, no doubt, to the difficulty of making suitable solutions of these bases. The statement of Overton led Gros [2] to compare the anæsthetic effect of some bases and their salts, and in nearly every instance the base was shown to be considerably more active. Furthermore, some time ago I found the injectio *cocainæ et sodii bicarbonatis*, which is known to be more effective than an ordinary cocaine hydrochloride solution of the same strength, to contain the cocaine actually in such a form that it can be readily extracted as base by an immiscible solvent. Viewed chemically, this would, perhaps, not have been expected. The finding of this basic cocaine fitted in with certain views on the subject of "activated" alkaloids, which need not be dealt with in detail here.

### *The Use of Alkaloidal Bases.*

In view of the above statements, I am inclined to think that the use of the alkaloidal bases would be preferable to that of the salts, if suitable solvents could be found. In the spring and summer of 1924 I was fortunate in finding a hospital clinician willing to try several alkaloidal base preparations—e.g., atropine, morphine, and codeine. (There is a description of the work in the "Extra Pharmacopœia," Vol. I.). Although it was only possible to give small amounts of these alkaloidal bases, they were found in some cases to have the effect of much larger doses of the salts. The great difficulty is, of course, that all these bases are only slightly soluble in aqueous or other diluents which can reasonably be employed for injection. It may be recalled that Warrington Yorke [3] did clinical work with quinine base in a sesame oil and alcohol medium, but this does not quite meet the case. My view is that one should try to find some type of solution of the basic alkaloid, capable of ready dispersion through the body fluids. A. J. Copeland [4] and H. E. F. Notton, in their search for an anæsthetic more satisfactory than cocaine, have failed, I think, to acknowledge adequately the researches of Gros. They have reintroduced his suggestion to employ a readily hydrolysed alkaloidal salt, and, founded on this idea, a preparation of novocain and boric acid has been brought to the notice of the profession as a new substitute for cocaine. It might be added that novocain (ethocaine) borate was examined in 1912 by Gros,[5] who found it to have the greatest anæsthetic effect of the five novocain salts tested. The borates, being the salts of a very weak acid, have the advantage of being readily hydrolysed, so that their aqueous solutions contain alkaloidal base, as in the injectio *cocainæ et sodii bicarbonatis*. They are, however, in general, too unstable to be extensively used.

Searching in many directions for a solvent which would allow of the preparation of a fairly concentrated solution of basic quinine for injection, one of my assistants (S. Back, B.Sc.) suggested the use of the alkaloidal borate in conjunction with glycerin or mannitol. The two last-mentioned chemicals, in moderately concentrated solutions, convert boric acid into a stronger acid (a fact utilised in the titration of borates), and it was found that this stronger acid then combines with some of the alkaloidal bases, forming salts which are quite stable in solution. On dilution of these solutions with water the salts are rapidly hydrolysed, giving a solution of the alkaloidal base and boric acid.

### *Mannitol-Quinine.*

From the experiments carried out with quinine, the following formula for such a solution appeared to be the most satisfactory :—

Mannitol-Quinine: *Suggested for intracutaneous or intravenous injection.*

| | | | |
|---|---|---|---|
| Quinine base .. | 12·0 g. | Mannitol .. .. | 7·5 g. |
| Boric acid .. .. | 8·4 g. | Distilled water to .. | 100 c.cm. |

1 c.cm. contains 0·12 g. (approx. 2 gr.) of quinine base and 0·084 g. (1¼ gr.) of boric acid.

This injection contains, therefore, doses of quinine within clinical limits in a reasonably small volume of diluent. I suggest the convenient short name "Mannitol-Quinine" for it. It is easily made by rubbing the powders together with about half the required amount of water, then adding, as the alkaloid dissolves, sufficient to produce the necessary volume. The quantity of boric acid used is approximately four molecules to one molecule of the base (borates of this kind are known to be very complex). If it be desired to sterilise mannitol-quinine, it will be found that on heating to 100° C. a deposit of the alkaloidal base is formed, but this re-dissolves on standing at the ordinary temperature for a few hours. Mannitol-quinine has been put to the test of different storage temperatures, and it would appear to be quite satisfactory on this point. It remains clear and unchanged up to a temperature of 60° C. (140° F.), and no crystallisation occurred at as low a temperature as −6° C. (21·2° F.). Mannitol-quinine is amphoteric to litmus paper, but is in reality practically neutral, the pH value being about 7. On adding water it becomes slightly alkaline, owing to the liberation of quinine base by hydrolysis. At first an opalescence, probably due to colloidal quinine base, is usually formed, but this disappears upon the addition of more water (long before there is theoretically sufficient present to dissolve the base).

This suggests the use of a dilute intravenous mannitol-quinine, made by the dilution of 1 c.cm. of the concentrated solution to 10 or 20 c.cm., just prior to injection. A small point which needs obvious mention is the possibility of the cumulative effect from the 1¼ gr. of boric acid, if repeated ; but this is, perhaps, negligible. It would, however, need watching (novocain borate contains 47·1 per cent. boric acid ; the 0·1 g. tablets of commerce containing nearly ¾ gr., to be dissolved in 5 c.cm. of diluent). The addition of mannitol to injections is occasionally referred to and recommended in the literature. For example, C. C. Holman [4] stated that he employed a 5 per cent. solution of novocain and mannitol for spinal anæsthesia.

### *Experiments by Admixture with Fresh Blood.*

*Expt. 1.*—Mannitol-quinine and a solution of quinine acid hydrochloride of similar alkaloidal strength were added to samples of fresh human blood to determine what difference, if any, could be observed on the quinine solutions coming into contact with it. Quinine acid hydrochloride was chosen as a salt readily soluble in water. As the amount of blood used was small, it was not expected that the results would be quantitative, but extraction of these blood and quinine mixtures with ether showed, confirming my previous work, that some of the quinine was actually present in the basic condition. In the case of quinine acid hydrochloride this is undoubtedly due to decomposition of the alkaloidal salt by the alkali of the blood.

*Expt. 2.*—The next step was to work on a somewhat larger scale, and for this purpose freshly drawn animal blood was used, the serum was centrifugalised off, and admixtures with mannitol-quinine and quinine acid hydrochloride solution of a like strength in quinine were added. Obviously, slightly different results would be obtained with entire blood, but for purposes of comparison and visibility serum was employed in this and the subsequent experiments. The blood serum was, of course, definitely alkaline to litmus, and it was noticed that incipient precipitation occurred in each instance on adding 1 c.cm. of the mannitol-quinine and of the quinine acid hydrochloride solution to 20 c.cm. of serum. I view this incipient precipitation in the light of the following suggestion :—

$$\text{Protein} + 2\text{NaHCO}_3 + \text{Quinine Ac.} \longrightarrow \text{Quinine Protein} + 2\text{NaAc.} + 2\text{CO}_2 + 2\text{H}_2\text{O}$$

On further addition of the two solutions to these amounts of blood serum the preparation with the mannitol-quinine addition naturally remained alkaline throughout, whereas in the case of the quinine acid hydrochloride solution about 3 c.cm. were sufficient to render the serum definitely acid.

*Expt. 3.*—The work was repeated on a subsequent occasion using larger quantities of fresh serum, the idea being to simulate to an extent what happens in vivo. There was no marked difference, so far as the precipitation was concerned, but ether extraction of the *clear fluids* (before precipitation) showed that approximately 33–38 per cent. of the quinine, added as quinine acid hydrochloride, was removable *as base*, but in the case of the mannitol-quinine as much as 75 per cent. of basic quinine was extracted from the serum.

*Expt. 4.*—In one instance excessive quantities of the quinine solutions—10 c.cm. to 60 c.cm. of serum—were added. After the addition of the 10 c.cm. of quinine acid hydrochloride solution the serum was definitely acid. In each case the serum was turbid, a precipitate forming after standing some hours. (It may be mentioned as interesting that a hydrochloric acid solution of the same strength in acid as the quinine acid hydrochloride solution, when added to the serum, did not cause any marked precipitation, whereas a 10 per cent. hydrochloric acid solution did.) The amount of the total quinine added which could be extracted as base in this experiment from the serum containing mannitol-quinine was 53·0 per cent., but with the quinine acid hydrochloride mixture was only 5 per cent. This hyper-acid experiment constitutes an extreme case ; the object was merely to determine what would happen in such an instance.

The matter is by no means concluded with these results, but the evidence from the various experiments conducted is clearly in favour of the use of such a preparation as mannitol-quinine. Experiments on hæmolysis would be of interest.

Medical men will, no doubt, grasp the trend of the whole investigation, and, if I may say so, its importance, because hitherto quinine salts injected have frequently caused actual necrosis, due no doubt to the *nature* of the salts used, and to the fact that actually a double chemical decomposition has to take place at the site of injection before the quinine can begin to act. Quinine is deposited, as such, at the site of the injection. Such quinine, I am told, could sometimes be cut out with the knife, and obviously could have no immediate antimalarial or other efficiency, because it had not dispersed through the tissues and was therefore incapable of action.

It has been shown experimentally, as described above, that when mannitol-quinine comes in contact with blood, a large proportion of the quinine (larger than in the case of quinine acid hydrochloride) is present in solution in the basic condition, and therefore in all probability is more readily absorbed. Whether the injection would show less deposition of quinine at the site of injection than the salts customarily used can only be determined by section-cutting, or, indeed, clinical use. There would certainly seem to be a distinct advantage in the administration of a basic preparation, since T. A. Henry and H. C. Brown [7] found that quinine base was considerably more active against free-living protozoa than the hydrochlorides, and J. A. Sinton [8] has stated that better results are given in malaria by the use of alkalis with the quinine. H. Acton [9] has also recorded the increased activity of the salts towards paramœcium in presence of alkali, and has concluded that, for injection, quinine base would be probably more efficient than the salts, and possibly non-irritant "if a means could be devised for injecting it in solution in this form."

### *Toxicity Experiments.*

Some experiments, kindly conducted for me by Major H. C. Brown, showed the toxicity to mice, intravenously, of the two solutions of quinine acid hydrochloride and mannitol-quinine, suitably diluted 12 or 24 times to be approximately the same—namely, about 1 c.cm. per kilo body-weight (equivalent to approx. 120 mg. of quinine per kilo). Mannitol-quinine was slightly the more toxic of the two. Experiments on mice with mannitol-quinine in the undiluted form could not be conveniently conducted, owing to the difficulty of measuring the small volume of the solution. I have been unable to trace data as to the toxic dose of boric acid intravenously in recent medical literature, hence, on this count alone, the results of these experiments are valuable.

It would labour the subject to incorporate the numbers of suggestions and experiments which have been made for several years past in my laboratories on the problem—the bulk of them fruitless. For example, any idea of employing a quinine salt and sodium bicarbonate on the lines of the cocaine and sodium bicarbonate injection, using every conceivable type of "protective," proved quite hopeless. Again, some weak acids, like glycine, had to be excluded by reasons of poor solubility of their salts.

*Glycerin instead of Mannitol.*—Glycerin has been mentioned as a possible substitute for mannitol. This appears to behave similarly, but a large proportion is needed, and on the whole the mannitol (though more expensive) seems to meet the requirements.

### *Conclusions.*

1. A formula for a reasonably concentrated solution of quinine salt (containing 12 per cent of quinine base) is given which contains the quinine virtually in the basic condition. 2. In view of the work of H. Acton, T. A. Henry and H. C. Brown, and others, the quinine in this form should be more potent. Though, as yet, no clinical trials on man have been made with it, my enthusiasm prompts me to publish this note. Perhaps other workers in the same field can make further suggestions. Animal experiments show that mannitol-quinine is practically no more toxic than a quinine acid hydrochloride solution of similar strength. 3. Mannitol-quinine may be suitable for hypodermic injection, and as such, or on further dilution, may be useful intravenously. 4. The solutions of the majority of quinine salts are distinctly acid, whereas mannitol-quinine has the advantage of being neutral, or only slightly alkaline. 5. Quinine salts (and mannitol-quinine) and other alkaloidal salts, on admixture with blood serum, yield the quinine and other alkaloids in basic condition to the serum, and mannitol-quinine shows a larger proportion, by experiment, of quinine base actually distributed. 6. It may be possible to utilise mannitol or glycerin on similar lines in the case of the borates of many other alkaloids.

PS.—Since sending this paper for publication, it has been noted that H. W. Acton and R. N. Chopra (*Indian Journal of Medical Research*, October, 1924) do not favour the injection of the salts of the cinchona alkaloids. They found that the hydrochloric acid radical of a cinchona alkaloidal salt causes œdema, irritation, and pain, and that the base, acting as a protoplasmic poison, causes death of the tissues. The neutral mannitol-quinine, described in my paper, obviates the effects produced by the very acid alkaloidal salts usually employed, and I am of the opinion that the quinine base in this preparation, being in solution, cannot be so destructive to the tissues at the site of injection, owing to its ready miscibility and diffusibility, as the suspension of the base tested by Acton and Chopra.

### *References.*

1. Overton: Ztschr. f. Physikal Chemie, 1897, xxii., 207.
2. Gros: Arch. f. exp. Path. u. Pharm., 1910, lxiii., 80.
3. Warrington Yorke: Annals of Trop. Med. and Parasitology, 1917, ii., 173.
4. Copeland and Notton: Brit. Med. Jour., 1923, ii., 547.
5. Gros: Arch. f. exp. Path. u. Pharm., 1912, lxvii., 127, 132.
6. Holman: THE LANCET, 1916, i., 936.
7. Henry and Brown: Trans. Roy. Soc. Trop. Med. and Hyg., 1923, xvii., 61–71.
8. Sinton: Indian Jour. Med. Research, 1923, x., 850.
9. Acton: THE LANCET, 1922, i., 128.

# ADMINISTRATION OF MORPHINE AND HEROIN.

## PRECAUTIONS TO BE OBSERVED BY THE PRACTITIONER.

THE Departmental Committee on Morphine and Heroin Addiction, appointed by the Ministry of Health in September, 1924, was asked

> "to consider and advise as to the circumstances, if any, in which the supply of morphine and heroin (including preparations containing morphine and heroin) to persons suffering from addiction to those drugs may be regarded as medically advisable, and as to the precautions which it is desirable that medical practitioners administering or prescribing morphine or heroin should adopt for the avoidance of abuse, and to suggest any administrative measures that seem expedient for securing observance of such precautions,"

and the reference was extended later to include consideration and advice

> "whether it is expedient that any or all preparations which contain morphine or heroin of a percentage lower than that specified in the Dangerous Drugs Acts should be brought within the provisions of the Acts and Regulations and, if so, under what conditions."

The Committee consisted of Sir Humphry Rolleston (chairman), Sir William Willcox, Dr. J. W. Bone, Dr. R. W. Branthwaite, Dr. G. M. Cullen, Prof. W. E. Dixon, Dr. John Fawcett, Dr. Adam Fulton, and Dr. J. Smith Whitaker, with Dr. E. W. Adams and Mr. R. H. Crooke (secretaries).

Section IV. of the report, which has just appeared (H.M. Stationery Office, 1*s.*), deals with the precautions to be observed in the administration of morphine or heroin. The position of a practitioner when using morphine or heroin in the treatment of persons who suffer from addiction to either of these drugs obviously differs in several important respects from that in which he is placed when using the drug in the ordinary course of his medical practice for the treatment of persons not so affected. Not only will the objects of treatment usually differ, but also the dangers to be avoided, and the precautions that are therefore necessary.

### *Precautions in the Treatment of Addicts.*

Morphine or heroin may properly be administered to addicts in the following circumstances—namely, (*a*) where patients are under treatment by the gradual withdrawal method with a view to cure; (*b*) where it has been demonstrated, after a prolonged attempt at cure, that the use of the drug cannot be safely discontinued entirely, on account of the severity of the withdrawal symptoms produced; (*c*) where it has been similarly demonstrated that the patient, while capable of leading a useful and relatively normal life when a certain minimum dose is regularly administered, becomes incapable of this when the drug is entirely discontinued.

*Gradual Withdrawal Method.*—In these cases the primary object of the treatment is the cure of the addiction, if practicable. The best hope of cure being afforded by treatment in a suitable institution or nursing home, the patient should, if possible, be induced to enter such an institution or home. If he is unable, or refuses to adopt this course, the practitioner must attempt to cure his condition by steady, judicious reduction of the dose. The general lines of the treatment, as carried out by practitioners of special experience, are described in the report. For success it is necessary that the patient should be seen frequently, be under sufficient control, and be in the care of a capable and reliable nurse. The practitioner should endeavour to gain his patient's confidence, and to induce him to adhere strictly to the course of treatment prescribed, especially as regards the amount of the drug of addiction which is taken. This last condition is particularly difficult to secure, as such patients are essentially unreliable and will not infrequently endeavour to obtain supplementary supplies of the drug. If, however, the practitioner finds that he cannot maintain the necessary control of the patient, he must consider whether he can properly continue indefinitely to bear the sole responsibility for the treatment.

When the practitioner finds that he has lost control of the patient, or when the course of the case forces him to doubt whether the administration of the drug can, in the best interests of the patient, be completely discontinued, it will become necessary to consider whether he ought to remain in charge of the case and accept the responsibility of supplying or ordering indefinitely the drug of addiction in the minimum doses which seem necessary. The responsibility of making such a decision is obviously onerous, and both on this ground and also for his own protection, in view of the possible inquiries by the Home Office which such continuous administration may occasion, the practitioner will be well advised to obtain a second opinion on the case.

*In Apparently Incurable Cases.*—These will include both the cases in which the severity of withdrawal symptoms, observed on complete discontinuance after prolonged attempted cure, and the cases in which the inability of the patient to lead, without a minimum dose, a relatively normal life appear to justify continuous administration of the drug indefinitely. They may be either cases of persons whom the practitioner has himself already treated with a view to cure, or cases of persons as to whom he is satisfied, by information received from those by whom they have been previously treated, that they must be regarded as incurable. In all such cases the main object must be to keep the supply of the drug within the limits of what is strictly necessary. The practitioner must, therefore, see the patient sufficiently often to maintain such observation of his condition as is necessary for justifying the treatment. The opinion expressed by witnesses was to the effect that such patients should ordinarily be seen not less frequently than once a week. The amount of the drug supplied or ordered on one occasion should not be more than is sufficient to last until the next time the patient is to be seen. A larger supply would only be justified in exceptional cases, for example, on a sea voyage, when the patient was going away in circumstances in which he would not be able to obtain medical advice. In all other cases he should be advised to place himself under the care of another practitioner, who should be placed in communication with his previous medical adviser in order that he might be informed as to the nature of the case and the course of treatment which was being pursued.

A practitioner when consulted by a patient not previously under his care, who asks that morphine or heroin may be administered or ordered for him for the relief of pain or other symptoms alleged to be urgent, should not supply or order the drug unless satisfied as to the urgency, and should not administer or order more than is immediately necessary. If further administration is desired, in a case in which there is no organic disease justifying such administration, the request should not be acceded to until after the practitioner has obtained from the previous medical attendant an account of the nature of the case. Requests from one practitioner to another for such information should obviously receive immediate attention.

### *Precautions in Ordinary Medical Practice.*

The evidence before the Committee would appear to indicate that there has been a recent diminution in the prevalence of morphine addiction, and that this is due to the operation of the Dangerous Drugs Acts in making it difficult to obtain the drugs except from or on the prescriptions of doctors. This enhances the importance of consideration of the precautions that are necessary in the use of these drugs in ordinary treatment, in order to reduce to a minimum the risk that a patient may develop a craving for them. These precautions are, the Committee thinks, well recognised among competent and careful practitioners in all branches of the profession, and the conclusions here stated, based on the testimony of medical witnesses, including representative general practitioners, may be regarded as expressing fairly the opinion of all members of the profession who have given the requisite attention to the subject.

Where the patient is suffering from organic disease for the treatment of which the drugs are necessary, the matter may be considered under two aspects, (*a*) cases in which the administration of morphine or heroin may be necessary for an indefinite period and in which the probability of a cure of the disease is remote (e.g., inoperable cancer and the like), (*b*) cases in which administration of the drugs is called for in order to deal with conditions which, though due to organic disease, may be expected to be of a more or less temporary duration (such as renal or biliary colic, &c.). In regard to class (*a*), since consideration of the possibility of the establishment of a craving cannot be allowed to influence the administration of such doses of the drugs as are considered necessary for the adequate treatment of the organic disease, it will be in those rare cases only in which there is some prospect of partial or complete recovery from the disease that any attention can properly be given, during the course of treatment, to such measures as are likely to mitigate or avert the risk of subsequent persistence of any craving which may have been produced. In respect of class (*b*), the employment of these measures becomes of paramount importance. They consist mainly in the substitution, when possible, of other drugs for morphine and heroin, in close supervision by the practitioner of the amounts used and of the frequency with which they are administered, and in withdrawal of the drug as soon as the necessity for its administration has ceased.

In stating the precautions to be observed in cases other than those referred to in the preceding paragraph, the Committee has in mind, particularly, those cases in which it is thought necessary to administer, say, morphine, in such doses, with such frequency and for so long a period as may be requisite, for example, for the relief of pain after surgical operations, or in cases of severe neuralgia in which the necessary relief cannot be obtained otherwise.

In cases in which it appears that the use of morphine or heroin may be thus desirable, it must first be considered whether the purposes of treatment can be substantially as well served by other drugs that do not involve the risk of addiction. Constant attention is necessary to adjust the dosage to the varying needs of the case. The intervals at which it is desirable to see a patient (not an addict) who requires the administration of morphine or heroin will necessarily be determined by the nature of the case. In cases of chronic disease requiring a more or less prolonged administration of the drugs, the patient need only be seen at such intervals as are appropriate on other medical grounds, but in cases such as renal or biliary colic, in which the necessity for the administration may cease at any moment, it may be important to see the patient more often than would otherwise be necessary in order to guard against the production of a craving.

The quantity supplied or ordered at one time for use by those nursing the patient should not ordinarily exceed what will be required before the patient is seen again. Where any discretion is given to nurses as to administration it should be strictly limited by prescription, and any change made in the treatment should similarly be stated in writing. The practitioner will realise that the responsibility for administration is entirely his, and cannot properly be delegated to any person not medically qualified. It is desirable also that the patient should not be informed of the name of the sedative drug employed; particularly inexpedient is the handing over to the patient of original packages containing morphine tablets, or the like, which bear on their labels a clear statement of the exact amount in each tablet. Hypodermic administration of the drug by the patient to himself is to be strongly deprecated.

all seemed to have been dumped upon France to relieve their home countries. This group has been costing 20,000 francs daily. The average age of the patients is 27, and the probable survival period is 30 years, so that the final cost will work out at somewhere about 50 million francs, even if the patients be placed in rural regions to reduce the expense.

There is no doubt that a certain number of them might leave the asylums, but before this can be done everyone of them will have to have a fresh mental examination. Dr. Roubinovitch, of Paris, who speaks Russian fluently, has offered his services as an alienist to the Minister of Hygiene and the Prefect of the Seine. Many of his compatriots cannot speak French, and obviously they have to be questioned in their own language. Probably this re-examination will take place, but the patients will first have to be collected into a single institution somewhere near Paris.

### *The Supply of Fresh Fish.*

Dr. Loir and Dr. Legangneux (both of Havre) have been studying the differences between fish preserved in melting ice, as is done on trawlers, and fish which has been kept in refrigerators, such as might be installed on larger ships which could go further afield to seas where fish is abundant. What we eat at present has been preserved in ice, but in a refrigerator it keeps the freshness that it had when it was caught. Here we have a question to look at from two points of view—the economic and the hygienic.

### *A Filter-passing Virus in Tuberculosis.*

Some interesting experimental research on a filter-passing virus in tuberculosis and on the transmission of infection through the placenta has been published by Dr. Arloing and Dr. Dufor, of Lyons. The agent which produces tuberculosis can not only occur in the bacillary forms in which it has long been recognised and studied, but can also be found in a form which is invisible and which is so minute that it passes through the porcelain of a filtering candle. This form of virus occurs especially in the tuberculous lesions of childhood (tuberculous adenitis, tuberculosis of the lung, and tuberculous meningitis). Inoculation into a guinea-pig of filtrate from such lesions produces tuberculosis of the animal in more than half the cases. Sometimes the guinea-pig dies in a state of extreme emaciation, and typical tubercle bacilli are found in the lymphatic glands without visible lesion. Sometimes, but more rarely, it dies of tubercle of the usual type. The authors have produced intra-uterine infection in the fœtus by inoculating the mother with filtrate containing invisible tubercle virus, and their experiments are, perhaps, important in their bearing on the vexed problem of hereditary tuberculosis.

### *Repopulation of France.*

A statement just issued by the Minister of Hygiene shows that the French birth-rate for 1924 was 19·2 per 1000 inhabitants, and that the infant mortality was 85 per 1000 live births. In 1913 the corresponding figures were 19·1 and 112. Infant mortality has thus distinctly diminished and the birth-rate is slightly more than holding its own.

The thirty-ninth French Congress on Ophthalmology will be held at Paris on May 10th. Information may be obtained from Dr. Onfray, 6, Avenue de la Motte-Picquet, Paris.

There will be a dermatological congress at Brussels from July 25th to 28th, at which there will be discussions on tuberculides, herpes zoster, purpura, syphilitic reinfection, superinfection and pseudo-reinfection, endocrine disturbances due to congenital syphilis, and the treatment of lupus and cutaneous tuberculosis.

From March 2nd onwards a post-graduate course in urological pathology and treatment is to be held at the Necker Clinic on Tuesdays and Fridays, at 4 P.M., under the direction of Prof. Legueu. Further details may be had from Clinique Urologique, Hôpital Necker, rue de Sèvres, Paris.

## DENTAL BOARD OF THE UNITED KINGDOM.

A MEETING of the Board was held on Feb. 10th, the President, Mr. F. D. Acland, being in the chair. It was announced that the name of Percy Ravenscroft had been restored to the Dentists Register from which it had been erased under Section 12 of the Dentists Act. The Board received from the secretaries of the Customs House a copy of Statutory Rules and Orders 1925, No. 1240, dealing with the sale of methylated spirits, from which it appeared that dentists have been placed on the same footing as medical practitioners under the regulations.

### *Public Education in Dental Hygiene.*

The Board adopted a report from the Dental Health Education Committee which dealt with business transacted since November last. Work in connexion with the dental health campaign has continued along the lines then laid down. New schemes of propaganda have not been initiated, but there has been a regular and increasing disposition to take advantage of the facilities offered, and it is clear that the Board's work is becoming widely known to organisations interested in public health. The Education Committee considers that the method of working through such bodies is justifying itself.

The main agents in publicity are cinema films, leaflets, and lectures, and the value of the cinema, both in giving actual instruction and in attracting the public to meetings, is becoming abundantly clear. More films have been asked for and, in conjunction with the National Baby Week Council, the Committee is preparing one which deals with the care of the mouth of the expectant and nursing mother and the infant. Requests for some 80,000 leaflets have been received since the last report; demands have been made by various insurance committees for large supplies for distribution to insured persons, and it is hoped that the approved societies will coöperate in distributing the Board's literature more widely. The offer to provide private practitioners with leaflets has evidently been appreciated, for some 500 dentists have applied for them.

Amongst the organisations with which the Board is cooperating are the Industrial Health Educational Council, through whose good offices the Board's lecturers are gaining access to the industrial classes in certain parts of Scotland; the Girl Guides; the National Council for Health, Maternity, and Child Welfare; and the National Federation of Women's Institutes. It is hoped that negotiations with the Federation will result in health lecture tours, to be arranged by the British Red Cross Society.

Other forms of propaganda have not been neglected. Progress has been made in the collection of the proposed dental health exhibit. A book for the instruction of teachers is in an advanced stage. Satisfactory publicity has been obtained in the press. The Committee believes that its efforts have already met with a notable degree of success and that serviceable work is being done at no undue cost by methods which are satisfactory to the dental profession.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 13TH, 1926.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox 253 (last week 390); scarlet fever, 1613; diphtheria, 1150; enteric fever, 43; pneumonia, 1352; puerperal fever, 62; cerebro-spinal fever, 15; acute poliomyelitis, 6; encephalitis lethargica, 61; dysentery, 6; ophthalmia neonatorum, 104. There were no cases of cholera, plague, or typhus notified during the week.

*Deaths.*—In the aggregate of great towns, including London, there were 2 (1) deaths from enteric fever; none from small-pox; 83 (19) from measles; 14 (2) from scarlet fever; 60 (4) from whooping-cough; 26 (9) from diphtheria; 49 (10) from diarrhœa and enteritis under 2 years of age; and 90 (16) from influenza. The figures in parentheses are those for London itself.

# Public Health Services.

## MENTAL HOSPITAL REPORTS.

THE fifty-fifth annual report of the *Glengall Hospital, Ayr,* records a drop of 23 in the number of inmates since the end of 1924. The superintendent reviews the figures for 30 years past and shows that the admission rate is much the same for both sexes to-day. The recovery rate was 31 per cent. for men and 57 per cent. for women, although the majority of women admitted were in a gravely exhausted state. There was some slight improvement in the physical state of the admissions last year on the male side, but on the whole the standard of physical health has steadily deteriorated for some years past, as many as 70 per cent. of the women and 12 per cent. of the men being classed as "seriously exhausted" on admission. The death-rate was 14 per cent., showing a steady increase during the last decade; half of the fatal cases were over 60. The general health of the inmates has been good, and there have been no epidemics. The hospital has a few voluntary boarders, but unfortunately there are still a number of mentally defective children who should really be in an *ad hoc* institution. Forty-one per cent. of the nurses and 33 per cent. of the attendants have obtained the certificate of the Royal Medico-Psychological Association.

The report of the Inspector of *Hospitals for the Insane in Queensland* for the year 1924 is just to hand. There are three large hospitals in the State. That at *Goodna* has 1400 patients and, of the 400 cases admitted during 1924, nearly half were suffering from the manic-depressive psychosis. There was a recovery rate of 52·6 per cent. on the admissions, the second highest rate for 16 years. The rate represents a high proportion of recoveries in the province, since curable cases of transient and incipient mental disease are received in the mental ward of the Brisbane General Hospital and so are not included in the statistical figure. The death-rate was 10·4 per cent. Senile decay was the fatal cause in a quarter of the cases, while no fewer than 12·8 per cent. died of general paralysis. Between 600 and 700 patients are employed about the buildings and grounds, chiefly in ward work and gardening or farming. At *Toowoomba* there are just over 1000 patients. Here also the manic-depressives form a large proportion (33·7 per cent.) of the total admissions during the year, but only one case of general paralysis was admitted. The recovery rate was 32·5 per cent., a lower figure than usual owing to a large number of senile dements and irrecoverable cases from the epileptic home at Willowburn. The death-rate reached the low figure of 3·8 per cent. This is the only mental hospital in Queensland that has no cinematograph apparatus. The *Ipswich Hospital* has only 450 patients, as it is a reception house for transfers from other hospitals, mainly for chronic cases from Goodna. The recovery rate is therefore low—18·2 per cent. The death-rate was 3·1 per cent. As many patients as possible are usefully employed about the hospital. There are also two reception houses, that at *Rockhampton* being only a half-way house for those arriving too late to proceed straight to Brisbane, while the *Townsville* House receives patients for observation and treatment before they go on to Goodna. About 100 such cases passed through during 1924, and 16 of them were discharged recovered. The total number of certified patients in the State at the end of 1925 was 2902, showing an increase of 25 on 1923, a proportion of 3·17 per 1000 of the total population. This corresponds with the figure in other States, the lowest being 2·21 in South Australia and the highest 3·81 in New Zealand. There is a State mental nursing certificate obtainable by examination, and a large proportion of the nurses hold this; 62 per cent. at Goodna, 44 per cent. at Toowoomba, and 72 per cent. at Ipswich.

# Correspondence.

*"Audi alteram partem."*

## PUNCTURED WOUNDS OF THE FINGER.

*To the Editor of* THE LANCET.

SIR,—From time to time the loss of a member of our profession is recorded as a result of a punctured wound of the finger, received during the performance of a post-mortem examination or of an operation on some acutely septic condition. In other cases not recorded irreparable damage has been done to the finger or hand sufficient to limit considerably any future work or at any rate create a serious handicap.

There were two lessons learned, or rather I should say impressed on us, during the war. The first was that excision of a wound was the best means by which to avoid a spread of sepsis, and provided this was performed early, success was met with in a large number of cases. The second was that temporary complete immobilisation of the limb, which gives the natural defences of the body the best condition under which to act, was a most valuable factor in helping to localise the results of an infection.

It is not always an easy matter to apply these two principles in civil life, and yet one cannot help feeling that adherence to them might be the means of avoiding some disasters. In my opinion a puncture wound of the finger received when there is a risk of infection should be immediately excised (after excision the wound may be closed) and the limb splinted.

It is in the very early stages only that these infections can be dealt with successfully, and though such treatment may often be considered excessive, the few days of real inconvenience it entails must be compared with the dire results that may otherwise follow. I am, Sir, yours faithfully,

London, Feb. 17th, 1926. F. D. SANER.

## THE ADMINISTRATION OF CARBON DIOXIDE IN ANÆSTHETICS.

*To the Editor of* THE LANCET.

SIR,—The administration of mixtures of carbon dioxide and oxygen in conjunction with general anæsthetics has been practised in America for a number of years. More recently, since such mixtures are now obtainable commercially in this country, it would seem that yet another cylinder must be included in the already sufficiently cumbersome equipment of the anæsthetist; for of the value of carbon dioxide there can be no doubt. It is probable that some of the good results obtained in nitrous oxide-oxygen anæsthesia are attributable to conservancy of carbon dioxide by re-breathing. The same contention may hold good, to a lesser extent, in "*perhalation*" ether administration.

On the other hand, it is just possible that some of the pallor and feeble respiration occasionally associated with open chloroform anæsthesia may be due to carbon dioxide deficiency. Prof. Yandell Henderson has already dealt with carbon dioxide deficiency as a factor in the causation of shock. In endotracheal insufflation anæsthesia, where re-breathing is not practicable, the occurrence of apnœa is not uncommon. When associated, as it usually is, with light anæsthesia, this troublesome factor can be responsible for muscular rigidity and delay in obtaining the necessary depth of anæsthesia. Under such conditions it is quite possible for cyanosis to be present, even when oxygen alone is being driven through the catheter. The judicious use of a mixture of 10–15 per cent. carbon dioxide with oxygen in these cases is attended by the immediate re-establishment of the respiratory excursions and consequent attainment of the requisite depth of anæsthesia.

At the end of an operation conducted under open ether the exhibition, in a gas-bag, of a similar mixture promotes de-etherisation and lessens post-operative nausea. This practice would seem to be of definite value at the end of a high abdominal operation, in the course of which the movements of the diaphragm are liable to be hampered. By assisting in the early re-establishment of diaphragmatic activity the mixture may well remove the tendency to stagnation at the pulmonary bases and help in the prevention of post-operative pneumonia.

In private practice the most convenient form in which to carry carbon dioxide for occasional use is the well-known "sparklet bulb." An ordinary fine adjustment valve can now be obtained from Messrs. Allen and Hanburys, Ltd., fitted with the necessary device for holding and puncturing the bulb. The gas is released into a small football bladder, from which it can be transferred as required to a gas-bag and mixed with oxygen in the proportions desired. Where greater accuracy is essential a water sight-feed fulfils the purpose.—I am, Sir, yours faithfully,

I. W. MAGILL, M.B., B.Ch. Belf.,
Assistant Anæsthetist, Westminster Hospital.

Feb. 20th, 1926.

## LORD LISTER'S BIOGRAPHY.

*To the Editor of* THE LANCET.

SIR,—A German translation of Sir Rickman Godlee's biography of Lord Lister has been published, which claims to be "the only authorised translation." It was only "authorised" on condition that it should be approved by him before publication, and this condition was not fulfilled. As his executrix I desire it to be known that neither he nor his representatives are in any way responsible for the accuracy of it.

I am, Sir, yours faithfully,
JULIET M. GODLEE.

Whitchurch, Oxon, Feb. 16th, 1926.

## A LUNG SPLINT.

*To the Editor of* THE LANCET.

SIR,—Under this title Dr. R. C. Wingfield has furnished a valuable contribution to the treatment of phthisis in your issue of Jan. 2nd. He points out the advantage of "limiting the movement of the diseased parts of the lung by even so little as 1 cm." and describes the method by which he attains this end.

On the desirability of limiting movement in the treatment of any lesion of the lung substance, I am entirely at one with Dr. Wingfield, a little limitation effected by some form of lung splint being at one end of the scale, and complete collapse of the lung by artificial pneumothorax at the other. The respective techniques of thoracoplasty and artificially induced pneumothorax, as recognised therapeutic measures, are more or less worked out, but the best method of restricting the movements of the lung by some form of lung splint still remains sub judice. I discussed the whole question of lung immobilisation in a paper entitled De la Compression du Poumon dans le Traitement de la Tuberculose Pulmonaire, read at the Paris Congress of Tuberculosis in October, 1905.

The point I wish now to emphasise is that the objective of treatment is not only to limit the movements of respiration but, furthermore, to relax the continuous tension on the periphery of the pulmonary lesion. We all know that an ulcer of the leg—a lesion of two dimensions only—will not commence to heal till the tension is taken off its edges. Hence, it may be assumed, a fortiori, that a cavity of the lung, which is a lesion of three dimensions, will not heal till the tension is taken off its walls. Thus, in dealing with pulmonary lesions, the problem is how to relax the peripheral pull continuously exercised by the chest wall on the lung substance—a pull which in health keeps the air cells distended while in disease it is opposed to the process of repair. Seeing that the disease is situated in the lung tissue and that the pull is exercised in every direction at its periphery, the solution of the problem is this: relaxation of the pull can be effected only by compression of the lung substance.

Compression of the lung may be either complete or relative—complete, when the lung is collapsed by effusions or pneumothorax, either spontaneous or induced—relative, when the chest cavity is reduced in size, either by natural processes of repair, by thoracoplastic operations, or by some method of chest compression. In collapse, when the lung tissues are generally and completely relaxed, the diseased area is theoretically under the best conditions for healing—an a priori conclusion confirmed by the salutary effects observed in pneumothorax, whether spontaneous or artificially induced. But there is also evidence to show that partial relaxation of the lung tends to promote healing in the diseased portion. And, apart from thoracoplastic operations—most valuable in certain cases—it remains to consider by what other means the lung tissues may be partially relaxed. This can only be effected by reducing the capacity of the thoracic cavity. Nature's methods of compassing this end are: 1. The encroachment of neighbouring organs—viz., the opposite lung and the abdominal organs—on to the domain of the diseased lung. 2. The falling in of the chest wall. 3. The development of bands of fibrous tissue radiating in many directions from the diseased area. These by their retraction not only tend to relax tension on the diseased area by their pull on neighbouring portions of healthy lung, but, when adherent to the parietal pleura, they pull in the chest wall.

How, then, can we aid Nature in this her task of reducing the size of the thoracic cavity? The cubic capacity of the chest varying with each respiratory movement, the idea of maintaining the chest cavity at its minimum suggests itself. And while it is impossible to abolish all respiratory movement, much can be practically accomplished, and, furthermore, the minimum capacity may be progressively reduced by the continued maintenance of pressure.

Where and how should this pressure be applied? In order to determine this, it is necessary to consider certain features of the thoracic cavity. It is cone-shaped, with its apex or dome upwards. The dome is less amenable to pressure than the base, being to a great extent sheltered by the shoulder girdle. The base admits of a much wider range of movement than the dome. The lung completely fills the chest cavity; in health it is uniform in structure throughout and fills uniformly with air when subjected to the peripheral pull of the chest wall, much as a sponge does when immersed in water.

With these structural and physical features in mind, let me endeavour to compare the effects of pressure applied at the apex of the lung and at the base, respectively. Pressure at the apex, by whatever method applied, to be effective must first double inwards and downwards the dome of the thoracic cavity. It will then act on the apex of the lung, tending thereby to relax the peripheral pull. But, as the general direction of the pressure is downwards, its effect must be to push downward the apex of the lung, so that a point at any level of the apex before the application of pressure must, when pressure is applied, be displaced downward in relation to the thoracic cavity. At its new level the circumference of the thoracic cone is greater and the power of the peripheral pull proportionately increased; so that the relaxation gained by direct pressure is counterbalanced by increased peripheral pull. Assuming, then, that relaxation of peripheral pull on the diseased area is the objective of treatment in pulmonary lesions, I conclude that, a priori, one cannot anticipate the best results from pressure applied at the apex.

To turn now to pressure applied at the base by means of a constricting band round the lower part of the thorax on the affected side. This not only limits the range of the respiratory movements but it thrusts the whole lung upwards, so that each point of its periphery is somewhat higher in relation to the thoracic cavity than it was before the application of the constricting band. And, being higher up, the lung occupies a narrower portion of the thoracic cone and, consequently, there is a general relaxation of the peripheral pull. Meanwhile, the apex of the lung is crowded into the pleural dome, the narrowest and most immobile part of the thoracic cavity, and, in that position, it is subject to a minimum degree of movement and a maximum degree of relaxation.

The application of this method is very simple, and can be carried out equally well at home as at an institution. The material used is 1½ in. adhesive strapping. Of this I cut six strips, long enough to surround the lower half of the thorax, just overlapping the spines of the vertebræ behind and the middle line of the epigastrium in front. The edges of the strips I snip, so that they may adapt themselves better to the contour of the surface. The first strip is applied firmly over the tenth dorsal spine and follows a slightly descending line to about the middle of the epigastrium. While applying it I direct the patient to breathe out forcibly and I pull it round firmly, fixing it during expiration; the second strip, just overlapping the upper margin of the first, I apply in the same way; the third strip I apply from below upwards, so that it crosses the first two and acts as a check to prevent them from slipping; the fourth and fifth slips are applied in series with and above the first and second and the sixth is applied as a check parallel to the third. In one or two cases I tried antero-posterior strips, passing over the shoulder and interlacing with the horizontal strips, but this I abandoned, both on practical and theoretical grounds. The strapping is changed about once a week, and should be carefully removed with the aid of spirit or turpentine, so as to safeguard the skin from injury. The treatment must be continued for a considerable period. The maximum over which I maintained it was two years and, while extraordinarily rapid healing took place in several cases, some benefited but slightly and others not at all.

The treatment is of most use in the common case of disease commencing at one apex, but I have had favourable results from its use where both lungs were affected. Moreover, it possesses certain advantages over the collapse method, so that it need not be used only to "avoid drastic procedure" but because, in suitable cases, it is better.

I am, Sir, yours faithfully,
STUART TIDEY, M.D., M.R.C.P.

London, Feb. 12th, 1926

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## INTRAVENOUS SOMNIFENE ANÆSTHESIA

*To the Editor of* THE LANCET.

SIR,—Dr. R. K. Lambert's paper on the aliphatic compounds in general anæsthesia in your issue of Jan. 16th, and Mr. E. R. Flint's note on hedonal anæsthesia in that of Jan. 30th, show how unceasing is the search for the ideal method of anæsthesia. Recently, in France, the experimental and clinical researches of Fredet and his associates on the use of somnifene in intravenous injection for surgical anæsthesia prove that by the use of this preparation general anæsthesia may be reduced to a minimum—in some cases it may be eliminated. The effect of somnifene is somewhat similar to that of hedonal as described by Mr. Flint, but the patient becomes unconscious more rapidly, usually about three to four minutes after the injection is begun. Fredet's interesting researches demonstrate that the seat of action of somnifene is chiefly in the nerve centres; its effect on the liver and kidney is extremely small. He further found that in the commercial product of this name there are two constituents, one with a slow and needlessly prolonged anæsthetic effect. He has eliminated this body and now employs only the other—viz., allylisopropylmalinurea—whose action is rapid and more transient.

To obtain surgical anæsthesia with this product it must be combined with morphia, or with morphia and scopolamine. In some cases nothing more is needed, but generally a small amount of a general anæsthetic is used to make and to close the incision. The technique of Fredet's method is as follows:—

(1) A hypodermic injection of morphia is given, varying from a minimum of 1 cg up to 2 cg as a maximum. It is advantageous to associate scopolamine with the morphia in doses varying from ¼ mg. as a minimum up to ½ mg as a maximum *according to the weight of the patient, and whether his general state is cachectic or satisfactory.*

(2) Twenty minutes later as a minimum interval, or 45 minutes as a maximum, after the morphia-scopolamine injection, the intravenous injection of allylisopropylmalonylurea is made in a vein at the bend of the elbow with a fine needle and *very slowly;* three minutes at least should be spent in the injection. The dose is calculated *according to weight, age, and the general state of the patient.* Generally in fairly robust adults 1 cg. *per kg.* of body-weight is used, never passing 0·07 g. Personally, we have never passed 0·08 g. In aged or cachectic patients 0·04 or 0·03 g. should be enough. Ampoules of the drug may be obtained containing 0·01 g. in each cubic centimetre of water.

(3) *Five minutes after the intravenous injection a small* amount of chloroform or ether may be *given to permit the* incision being made about ten minutes after the intravenous injection. During the operation the general anæsthetic can often be dispensed with, to be resumed should the patient move and at the end to facilitate the suture of the wound.

This technique in practice is extremely simple, the anæsthesia is excellent, post-operative vomiting very rare. Patients awake four or five hours after operation to fall asleep quietly again. Excitement, which was frequently observed after somnifene anæsthesia when first used, is often quite absent with the latest preparation. I have used this anæsthesia in certain cases for over 18 months and, though it has not replaced routine methods, it is my choice in two types of cases—when the patient is a bad risk from pulmonary complications or from probable hepatic and renal insufficiency, and again when we are certain the operation must be prolonged. Thus I have used it in most types of gastric operations, gastro-enterostomy, gastrectomy, Balfour's operation, pyloroplasty and duodeno-jejunostomy, colectomy, and the prolonged operations needed for the case of gastro-colic fistulæ. In the tedious operation for large ventral hernia in a bronchitic patient and in exploratory operations when cancer is inoperable it has served me well. In several cases of gastro-enterostomy in most debilitated patients, by the addition of some local anæsthesia of the wall no general anæsthetic was required. In a case of colectomy of the sigmoid for a ring carcinoma neither local nor general anæsthesia was employed, the patient slept deeply, never resenting the inevitable drag of the mesentery during mobilisation of the descending colon which was anastomosed to the rectum by Mayo's tube method. He never vomited afterwards; the pulse never passed 100.

Fredet's researches and a list of cases in which this anæsthesia was employed are fully detailed in the *Bulletins de la Société Nationale de Chirurgie* for July, 1924, and March, 1925. More recently he has published (*Paris Médical*, Dec. 5th, 1925) a useful résumé of his work after an experience of about 200 cases.—I am, Sir, yours faithfully,

IAN MACDONALD, M.D.

Huelva, Spain, Feb 10th, 1926

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## SELECTION OF COD-LIVER OILS FOR MEDICINAL USE.

*To the Editor of* THE LANCET.

SIR,—In the joint inquiry upon cod-liver oil, conducted by Prof. J. C. Drummond and myself, I was mainly responsible for the section dealing with the Newfoundland oils and with the relation of the sexual condition and age of the cod to the potency of the liver oil. I feel, therefore, obliged to comment on the article by Prof. E. Poulsson in THE LANCET of Feb. 6th (p. 320), in which he criticises certain statements made by Prof. Drummond in the issue of Sept. 26th, 1925. As I did not see Prof. Drummond's article until it appeared in print, I do not hold myself responsible for everything stated therein.

Prof. Poulsson is quite right in asserting that the sexual condition of the cod during spawning has no bearing on the activity of the oil, as was shown by my colleagues and myself, and I feel gratified that this work has been confirmed by our Norwegian colleague. It is difficult to interpret Prof. Poulsson's figures on the relative tests of Newfoundland and Norwegian cod-liver oils without a fuller description of the method employed by him. In our own work, with numerous samples of Newfoundland oils originating from different localities and from different seasons, the minimum growth-promoting dose as tested by the method of Zilva and Miura [1] was found to vary from 1·3 mg. to 1·6 mg. On the other hand, a much greater variation was found in the growth-promoting potency of the Norwegian Lofoten oils. Whether this variation was accidental or not, time will prove. At present neither the work of Prof. Poulsson nor of Prof. Drummond and myself can supply a definite answer.

It has now become necessary to reconsider the method previously employed for estimating the fat-soluble vitamins in the light of the new discoveries made in this field of research since the inception of the cod-liver oil inquiry. We are faced with the problem whether the high potency of individual cod-liver oils, as observed by employing "growth" criteria, should be referred to their content of vitamin A or of the antirachitic vitamin D or to the joint effect of both principles. If at the present time I desired a potent cod-liver oil, I should endeavour to procure a Newfoundland oil, not because it hails from a British possession, but because from the scientific information available it is of high and *uniform* potency as judged by the older methods employed for testing.

I am, Sir, yours faithfully,
S. S. ZILVA.

The Lister Institute of Preventive Medicine.
London, S.W., Feb 16th, 1926.

## TRANSFUSION OF WHOLE BLOOD.

*To the Editor of* THE LANCET.

SIR,—Encouraged by Dr. Dyke's letter in your last issue reopening the subject of blood transfusion, I feel that several further points might well be raised. In the leading article in THE LANCET of Jan. 23rd it is stated that Dr. Platt finds that "reactions never occur" with defibrinated blood, and that "the minor reactions are all due to citrate." Neither of these statements is made in my paper (which appeared in that issue), as any careful reader may find out for himself. In my paper as drafted the question of the origin of the reactions was more fully dealt with, but this had to be cut down for publication.

With regard to Dr. Dyke's letter, the pathologists have repeatedly warned us of minor agglutinins, but, as pointed out in the same leading article, these have never seemed to be of much importance practically. No doubt a careful adherence to Dr. Dyke's technique of blood testing might eliminate some of the very infrequent and mild reactions which undoubtedly may occur with whole (uncitrated) or with defibrinated blood. (Incidentally, I do not like the term "whole" applied to citrated blood, which is, of course, deficient in available calcium.) However, as last week I had to test no less than 11 relations and friends of a patient before finding a Group IV. donor, I was glad to be content with a "two-minute" test.

I quite admit that I have omitted to take precautions against minor agglutinins, but Dr. Dyke, on the other hand, has disregarded entirely the scientific evidence that citrated blood may be toxic even to the individual from whom it was taken. References to this may also be found in my paper. If we agree that the problem of the cause or causes of reactions is still open to controversy, the only evidence acceptable must therefore be of a practical nature, and come from those who have had experience of the technique and results of both methods. I very much doubt if any one who has had that experience would ever go back to citration.

With reference to Dr. H. H. Moll's paper (in your issue of Jan. 23rd), though I am interested in his ingenious method, if he will try applying "a fair amount of pressure to maintain a steady flow of blood through the very fine needle" into a test-tube he will find that on centrifuging a good deal of hæmolysis has taken place. I have often wondered whether the injection of partially hæmolysed blood is not another possible cause of reactions.

I am, Sir, yours faithfully,
Sheffield, Feb. 20th, 1926. ROBERT PLATT.

*** We regret having attributed to Dr. Platt an opinion which he wishes to disown. The sentences in our leading article were intended to summarise his attitude, as the absence of quotation marks indicated. We seem, however, to have misinterpreted his intentions, and it will make the position clearer if we now reprint his actual words: "That the reactions are due to the citrate and not to the many other factors which have been suggested is shown by the fact that such reactions practically never occur when whole blood is used—and as I hope to show later, when defibrinated blood is used . . ." The difference between Dr. Platt's opinions and our restatement of them seems to be very small.—ED. L.

## CRIMINAL OFFENCES AND PROSTATIC ENLARGEMENT.

*To the Editor of* THE LANCET.

SIR,—I should be glad to correct two material errors in the last sentence of your otherwise accurate summary of my paper at the Medico-Legal Society on Feb. 16th; because I never suggested that in *most* cases the guilty person should be placed under the care of relatives, or that this was a function of the Procurator-Fiscal in Scotland.

My plea was that in certain cases only—namely, where the man had led an ordinary decent life up to the age of 60—the existence of prostatic enlargement in conjunction with symptoms might be advanced in mitigation of consequences; that in cases of indecent exposure the medical evidence, together with an undertaking by relatives that the guilty person would be placed under supervision and medical treatment, might lead the Procurator-Fiscal in Scotland to stop criminal proceedings; that the same evidence in England might lead magistrates to have the guilty person bound over; and that in all more serious cases medical treatment should be undertaken in prison, unless insanity was established within the limits of the McNaghten judgment.

It is certainly not the function of the Procurator-Fiscal to supervise the conduct of such persons, and except in the simplest cases, whose behaviour resembles senility more than vice, no relaxation of the criminal law was advocated.

I am, Sir, yours faithfully,
HALLIDAY SUTHERLAND.
Wimpole-street, W., Feb. 20th, 1926.

## MEDINAL.

*To the Editor of* THE LANCET.

SIR,—The fatal case of poisoning by medinal so graphically described in your last issue attracted my attention, because this preparation of veronal has, for some years, been my favourite drug in troublesome insomnia. No estimate was apparently made of the amount of the fatal dose, but it was obviously enormous even for one who was the victim of a veronal habit. Dr. Stolkind's article conveys an ominous warning of the mental and physical degradation which awaits those who become addicted to di-ethyl-malonyl-urea, under any guise or nomenclature. But as long as hypnotics have a part to play in therapeutics, it seems to me very difficult to secure a drug which is safer than this one, which

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[1] Biochem. Jour., 1921, xv., 654.

I *prefer to use in the form of medinal.* The drug is certainly powerful as a hypnotic, but in my experience of it, it is innocuous to the digestive, circulatory, respiratory, and nervous systems if used in medicinal doses. The drug is obtainable in various forms, but I have come to rely on the medinal preparation because of its rapidity of action. It seems to me that the moral of this unfortunate case lies in its *social aspect, and that the important therapeutic value of* the drug is in no way compromised by the interesting report of Dr. Stolkind.

I am, Sir, yours faithfully,

J. SNOWMAN, M.D.

Brondesbury, N.W., Feb. 22nd, 1926.

*** We are glad to publish Dr. Snowman's letter. With reference to Dr. Stolkind's note which appeared in THE LANCET last week, it has been pointed out to us by Messrs. *Schering, Ltd.,* that, while medinal, a scheduled poison, will, of course, be harmful if taken in grossly wrong doses, it possesses certain pharmacological characters contradicting the conclusions arrived at in the article. The opinion of Dr. Mackenzie Wallis, expressed during a discussion on insomnia at the Bath meeting of the British Medical Association, was to the effect that "sulphonal, veronal, and medinal in ordinary doses had no effect whatever on the functional activity of the liver and kidneys nor was there any effect on general metabolism . . . . all three drugs were rapidly excreted and showed no evidence of cumulative action." It is claimed for medinal that, being extremely soluble, it is rapidly absorbed and eliminated, cumulative effects being thereby obviated. —ED. L.

# Obituary.

## MEREDITH B. R. SWANN, M.D. CAMB.,

### DEMONSTRATOR OF PATHOLOGY IN THE UNIVERSITY OF CAMBRIDGE.

WE alluded last week to the tragedy of Dr. Swann's early death. He performed a post-mortem on the morning of Feb. 6th on a patient suffering from lymphatic leukæmia, who had died with a high temperature probably due to a terminal infection. Swann sustained a small punctured wound through a rubber glove, the wound being at the tip of the middle finger of the left hand—it was thought to be due to a sharp tooth encountered whilst removing the larynx. No measures were taken until afterwards, when picric acid was applied, but about bedtime Swann himself made a small incision with a *razor as the finger* was painful, and at 4.30 A.M. on Feb. 7th surgical advice was taken. The temperature was then about 102°F. and the finger was at once laid *open,* the puncture excised, and antistreptococcus serum injected. Some slight axillary *tenderness* was noticed, and later in the day a large dose, 100 c.cm., of serum was given (pure *streptococcus having been found* in smears and early culture) and an extensive incision was made over a *reddened site in the* upper arm. The temperature on the 8th being about 100° and the axilla quiet, it was *hoped that the* mischievous process was under control; but on the 10th the temperature was higher and a wide clearance of inflamed glands was made from the axilla, at the apex of which a few drops of pus were discovered. This was the only pus seen in the illness, the subsequent history of which was chiefly one of incisions for spreading skin infection of the clinical nature of erysipelas. This occurred on the left side from the neck to the groin, and, although improvements at times followed, death from toxæmia took place on Feb. 16th.

Meredith Blake Robson Swann was born on July 20th, 1893. He was the son of Frederic Swann, at one time headmaster of Ilkley Grammar School and subsequently a member of the staff of the *Times.* Educated at Dulwich College, he was elected *to a* scholarship at Gonville and Caius College, and in 1914 was placed in the first class of the Natural Sciences Tripos. He completed the medical curriculum at King's College Hospital, and after acting as house physician and casualty officer was gazetted as surg.-lieutenant to H.M.S. *Bacchante.* He served in the Royal Navy until after the conclusion of the war, and in April, 1919, returned to England and was shortly afterwards appointed demonstrator of pathology in the University of Cambridge. In March, 1923, he was admitted to a Fellowship at Caius and in *the same year he was awarded the Raymond Horton* Smith prize, which is given for the best dissertation submitted for the degree of Doctor of Medicine.

Swann from the beginning showed that his return to a career of research was justified. He was greatly attracted by the work for which he had exceptional gifts. He was a brilliant and successful teacher, and both in the Department of Pathology and at Caius, where he became supervisor of medical studies, his exceptional ability was expended to its full extent for the benefit of his pupils. He was sincerely interested in teaching, and he never failed to interest the men whom he taught. In the selection and preparation of material *for class-work he held no expenditure of time or pains* too great to secure results which satisfied his judgment. He expected a high standard from the men whom he taught and he never spared himself in helping and encouraging others to do their work well. As supervisor of medical studies he exerted a great influence on the large number of students who came to him for guidance and advice. He took a prominent part in devising and carrying out the new courses in general pathology for Part II. of the Natural Science Tripos and was personally *responsible for a well-planned* schedule in experimental morbid histology.

Already his published work demands attention—it was concerned with the *germination period of bacterial* spores and with the effects of X rays on the functions *of tissues and organs. More recently he had taken* a very active interest in histology and was keenly studying *methods for the* production and demonstration of the minute anatomy of inflammation and necrosis.

Dr. Swann married in 1917 Marjorie, daughter of Mr. Alfred H. Dykes, of Beckenham, by whom he had three children, and the deepest sympathy for them in their loss is felt by all. His colleagues and his many friends were devoted to him and he was universally popular among his pupils; his death has caused a gap in university circles which will be hard to fill, and his memory will long abide at the centre of his work.

## JAMES FAIRLIE GEMMILL, M.D., D.SC. GLASG., F.R.S.

BY *the death of Dr. J. F. Gemmill,* professor of natural history, University College, Dundee, the College has suffered a severe loss, as although he had only served it for six years his influence and teaching had already made themselves felt.

James Fairlie Gemmill had a brilliant record as student; in arts, in classics, and in philosophy he gained most of the prizes open to him, and in medicine his record was much the same. It was his ideal to take up scientific research. From the *first he was* attracted by marine biology, and after graduation his first few years were spent in *equipping himself* by study in the chief European marine laboratories. Returning to Glasgow *University, he acted* as assistant and later as lecturer-assistant in the anatomical department, and on *the establishment* of the new department of embryology was made lecturer in embryology with full *charge of the laboratory.* To a large extent, however, his bent was still towards marine biology. *Largely through his efforts* the West of Scotland Marine Biological Association was formed, and later the *marine laboratory* at Millport. In both these institutions he was the leading spirit. The *material obtained from* Millport gave him continuous problems for research and his steady flow of original *articles showed that he* utilised his opportunities to the full. His eager enthusiasm resulted in widespread *interest in marine biology,* and the summer course in Millport attracted large classes. His promotion to

University College, Dundee, came in due course, and his influence there was soon felt. Again he had the congenial task of building up a local interest in natural history, and well he performed this task. He instituted popular science lectures in University College and his vast output of original work was recognised to be of high merit. His monograph on the Teratology of Fishes and his important researches on marine worms, the development of echinoderms, and the embryology of cœlenterates put him in the first rank of British zoologists. Gemmill's teaching was attractive and his influence lasting. In his relationship to his fellow men he was very fortunate in his happy gift of friendship. His wide knowledge, his kindly attitude, and his somewhat shy manner endeared him to all ranks and conditions of men. There was much sympathy when it was learned at the beginning of the winter session that he was obliged fo ask for leave of absence on account of ill-health. A prolonged holiday had helped but not cured him. He found it impossible to resume teaching, but was continuing with some of his research work at the time of his death. He was elected F.R.S. in 1924.

## HUGH JONES ROBERTS, M.D. DURH., F.R.C.S. EDIN., D.L., J.P.

IN his sixty-fourth year Colonel H. J. Roberts, of Pen-y-Groes, near Carnarvon, has died at Southport, and by his death Carnarvonshire has lost one of its outstanding personalities. Hugh Roberts was the eldest son of the late Dr. Evan Roberts, whose practice he and his brother carried on at Pen-y-Groes. He qualified from Guy's Hospital, London, as M.R.C.S. and L.S.A. in 1885, and in 1907 took his M.D. degree at Durham. Four years later he became F.R.C.S. Edin. In his own county Dr. Roberts was a magistrate and deputy-lieutenant, and for a time acted as chairman of the Carnarvon bench. He was president of the North Wales branch of the British Medical Association, an hon. associate of the Order of St. John of Jerusalem in England, and a member of the Court of Governors of University College of North Wales. He was also a pioneer of the Volunteer movement, and for several years commanded the 6th Volunteer Battalion of the Royal Welch Fusiliers. During the war he had charge of military hospitals at Preston and Eaton Hall, and was afterwards medical commandant of the military hospital at Bangor until its disbandment. Colonel Roberts held the Volunteer long-service decoration and served in the Carnarvonshire Territorial Association. He leaves a widow, two sons, and two daughters.

## HENRY RAYNER, M.D. ABERD.

Henry Rayner was born in East Kent in 1841. After completing his school education he entered as a student at St. Thomas's Hospital and qualified as M.R.C.S. Eng. and L.S.A. Lond. in 1864. From London he went to Aberdeen, where he graduated M.B., C.M., with high academic honours in 1866 and took his M.D. in 1870. Soon afterwards he was appointed resident assistant physician at Bethlem Royal Hospital, and a year or two later became medical superintendent (male division) of the Hanwell Asylum, from which he retired about 1891 for consulting practice. He was for a time lecturer on mental diseases at Middlesex Hospital, but subsequently returned to his own hospital (St. Thomas's), where he was appointed physician for mental diseases (out-patient department). This was the first appointment of its kind in connexion with a London general hospital. Early in his career Dr. Rayner took an active part in the Medico-Psychological Association and was its honorary secretary; in 1884 he was elected president, and at the time of his death, therefore, he was the second senior past president of the now Royal Medico-Psychological Association, Sir James Crichton-Browne being the senior. Dr. Rayner was one of the promoters of the After-Care Association for the Insane discharged from asylums on recovery, and some years back succeeded the late Sir George Savage as its chairman, retaining the post until his death. This Association will miss him greatly, for its work was always near his heart. He was a ready writer, and contributed articles to Allbutt's "System of Medicine" and to the medical journals. For some years he was one of the editors of the *Journal of Mental Science*. As he was in his eighty-fifth year at the time of his death he had survived most of his contemporaries, but to the few of his old friends who remained he was endeared by his courteous and cultured manners, intellectual energy, and sympathy for his fellow men. Until a few days before his death he was active in mind and body.

Dr. Rayner leaves a widow, two sons who are members of the profession, and one daughter.

## MICHAEL FRANCIS COX, M.D. N.U.I.,

### PAST PRESIDENT OF THE ROYAL COLLEGE OF PHYSICIANS OF IRELAND.

AT the age of 75, Dr. Michael Cox died on Feb. 20th at his house in Merrion-square, Dublin, after a long illness. He was educated at the Catholic University School of Medicine, Dublin, and qualified in 1875. Twenty years later he became Fellow of the Royal College of Physicians and in 1923 was elected President. Unfortunately, he fell ill shortly after election and only performed the duties of the office for a short time. In 1895 the honorary degree of M.D. was conferred on him by the Royal University of Ireland, and during the Viceroyalty of Lord Aberdeen he was made a member of the Irish Privy Council, an honour which he resigned in 1920 to mark his disapproval of the Irish policy of Mr. Lloyd George's Government.

After a short period of country practice in Sligo in his younger days, Dr. Cox moved to Dublin, and became a member of the staff of St. Vincent's Hospital, to which institution he gave devoted service for the rest of his life. He was a hard-working physician and a careful and clear teacher; in consequence he enjoyed a large private and consulting practice. Apart from his medical work he had many interests; he was on intimate terms with all the Irish Nationalist leaders, was an indefatigable reader and book collector, and was a vice-president of the Royal Society of Antiquarians of Ireland. His academic appointments included membership of the Senate of the Royal University, and subsequently of the National University, and he was also Chairman of Convocation of the latter.

In his time there were few physicians in Ireland who were better known or enjoyed a larger practice. A man of strong convictions and deep feeling, Dr. Cox was courteous and tolerant to all, and was recognised as a man of great kindness and generosity.

## JOHN BENJAMIN STORY, M.B., M.CH. DUB.,

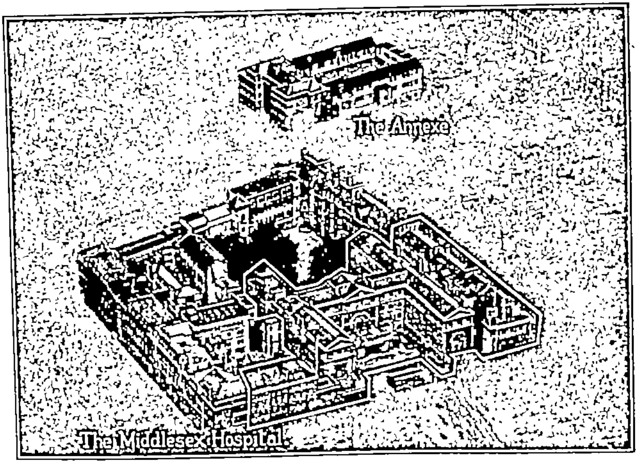
### PAST PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS IN IRELAND.

THE death of Mr. John Story occurred on Feb. 19th at Malahide, Co. Dublin, after a brief illness. He had retired from practice a few years ago and had reached the age of 75. Mr. Story was educated in Trinity College, Dublin, where he took an honours degree in arts in 1872 and his medical degrees in 1876. He subsequently studied at Zürich and Vienna, and then took up ophthalmic practice in Dublin. He became a Fellow of the Royal College of Surgeons in Ireland in 1880, was for many years a member of the Council, and was President from 1918 to 1920. He was for some time surgeon to St. Mark's Ophthalmic Hospital, and when it merged into the Royal Victoria Eye and Ear Hospital in 1896 he became surgeon to that institution, in which he continued to work until his retirement from practice. Mr. Story was president of the Irish Medical Association in the year 1913–14. In addition to his work as surgeon at the Royal Victoria Hospital, he was ophthalmic surgeon to Dr. Steevens' Hospital, and consulting ophthalmologist to Mercer's Hospital. He had a large practice in his specialty, and both for ability and character held a high place in the profession in Ireland.

# THE MIDDLESEX HOSPITAL ANNEXE.

## FORMAL OPENING.

On Feb. 23rd Mr. Neville Chamberlain, the Minister of Health, formally opened the temporary premises of the hospital in Cleveland-street. The building was once a Metropolitan Asylums Board infirmary and has been fully equipped from top to bottom according to modern standards of hospital design. There are six wards, two operating theatres, and an X ray department, and as the annexe is likely to be occupied for several years, during the reconstruction of the Middlesex Hospital, no pains have been spared to make it a self-contained unit of real efficiency. The transference of 98 patients over the distance of 250 yards from the condemned wards into the Cleveland-street annexe was successfully accomplished on Feb. 19th in less than three hours. The British Red Cross Society lent nine motor ambulances and the work was done by 30 students and the available staff of nurses. The aid of the police was needed to keep back the curious crowds that gathered in the neighbouring streets. The first patient was placed in an ambulance at 8.15 A.M. and the move was complete by 10.50—in ten minutes less than the time allowed. At the same time 14 patients were moved to another part of the main hospital.



View from the air showing the part of the Middlesex Hospital that is to be rebuilt (encircled by a white line) and the position of the Annexe.

Prince Arthur of Connaught, chairman of the hospital, formally welcomed Mr. Chamberlain, who, in a short address, touched lightly on many subjects of topical interest. He pointed out that the simplest, the easiest, and certainly the cheapest way of carrying on during the necessary reconstruction of the hospital would have been to refuse to accept any new patients until the numbers in the hospital had been so reduced that the old wards could be cleared for reconstruction. He had no doubt the Board must have considered such a course. But they regarded themselves as a unit in the great voluntary hospital system of London and they realised a responsibility towards the public. And so with great courage, but also with great wisdom, they took the opportunity to acquire an old building in close proximity to the hospital itself, and trusted to the public to see that the means were provided to carry out their plan. Moreover, they had not been content merely to provide a sort of clearing-house for their patients, but had visualised the ultimate conversion of the annexe into a new out-patient department which should be worthy of their importance in the hospital world. An out-patient department might not always seem as interesting or as important as an in-patient department, but it stood to the institutional work of the hospital in somewhat the same relation as prevention does to cure. It was in the out-patient department that the surgeon or the physician saw the first premonitory symptoms of disease, and it was there that often he was able to take such measures as might make it unnecessary for the patient even to visit the wards of the hospital.

The recent history of this hospital was a rather striking testimony to the vitality of that long threatened, but apparently unconquerable voluntary system. The three great functions of any general hospital were the provision of treatment for accident and for disease, the training of future practitioners, and the pursuit of research. It was a significant fact that every teaching hospital in this country was on the voluntary principle and that the voluntary hospitals were not only the pioneers of medical research, but are still actively developing the research side of their activities. The voluntary system had admitted defects and gaps and it was not altogether unnatural that some people should protest against the uncertainties of a scheme which depended entirely upon the voluntary offerings of a generous public, and plead that it should be turned over to the State, and to the boundlessness and unfailing resources of the Chancellor of the Exchequer. Were we certain, however, that they are unfailing? It would not be very long before we were all made aware of the state of the national purse, and then we should know whether we could afford to despise these voluntary sacrifices, which, to the givers, formed a source of satisfaction, in that they were giving of their own free-will what they would only yield to compulsion with reluctance and perhaps even with resentment.

In Mr. Chamberlain's opinion, destruction of the voluntary system would be a national disaster of the first magnitude. It might be that some day the health services would be so developed as to come nearer to the ideal plan under which there should be no unnecessary duplication, no waste, no overlapping, and yet which should offer to every citizen not merely the highest professional skill, but the use of all that wonderful apparatus and equipment which modern science had put at our disposal. Even to get an approximation to such an ideal meant that every agency now working for the prevention or the cure of disease would have to be coördinated. It might be that, if an adequate place was to be found in such a scheme for voluntary hospitals, it would be necessary to bring about some changes in their relations with other institutions, to ask them to yield up something of the complete independence they enjoyed to-day. But if such a change should ever come about he expressed conviction that the change must be so contrived that they should not in any way impair or injure those great qualities which had made our voluntary hospitals the pride of this country.

# INTRATHORACIC NEW GROWTHS.

## A MANY-SIDED DISCUSSION.

At a combined meeting of several Sections of the Royal Society of Medicine—Medicine, Electro-Therapeutics, Surgery, and Laryngology—held on Feb. 23rd, the chair being occupied by Dr. Hugh Thursfield, the President of the first-named Section, a discussion on Intrathoracic New Growths was introduced, from the medical aspect, by Dr. L. S. T. Burrell, whose paper appears in full on p. 435.

### *The Laryngological Aspect.*

Mr. Somerville Hastings, speaking as a laryngologist, said that intrathoracic new growths made themselves known (1) by laryngeal symptoms due to pressure on the vagus and its branches, (2) by pressure on or involvement of the œsophagus, (3) by obstructing the lumen of the trachea or bronchi. Involvement of the pneumogastric nerve might cause paroxysms of coughing. The exact results laid down in Semon's law occurred, the abductor fibres going first and being followed by the adductor. When both recurrent nerves were involved, or one or both was in the first stage of pressure, there might be considerable dyspnœa and noisy inspiration. When an intrathoracic tumour was malignant and when complete paralysis of both cords was certain, should the patient live long enough, he considered that intubation was preferable to tracheotomy, for it would tide the patient over until the stage was reached of complete cord paralysis in the cadaveric position. A mediastinal tumour might first become evident by pressing on the œsophagus and causing difficulty in swallowing. In most cases of œsophageal obstruction more accurate information was obtainable by passing the œsophagoscope than by taking skiagrams after an opaque meal; especially was this so when a mediastinal tumour was present. To relieve the obstruction the passage of a Symonds's or a Souttar's tube might be necessary, or well-screened radium could be applied to the growth from the œsophagus. Rarely was gastrostomy required. Examination of the main bronchi could well be carried out by means of the bronchoscope, while with the use of that instrument bismuth subcarbonate or lipiodol could be carried out, and the condition rendered clear to the X rays. As a result of obstruction of bronchi by new growth bronchiectatic dilatations often occurred, and lung abscesses, with foul breath, might follow. In such a condition the comfort of the patient, and therefore of his friends also, was much increased by performing lavage through the bronchoscope.

### *The Surgical Aspect.*

Mr. J. E. H. Roberts gave his extensive experience of dealing surgically with the kind of growths under discussion. He reminded the meeting of the saying of Dr. Finney, of Baltimore, that in regard to intestinal obstruction it was more important to operate early than to operate well. There was not the same urgency about intrathoracic tumours, but until diagnosis was made earlier treatment for malignant tumours would be merely palliative, and even in innocent tumour cases the treatment would continue to be more difficult and risky than it need be. The clinician still regarded chest tumours as rare events, hence when they occurred they were often unsuspected; but it was hoped that a result of this discussion would be that physicians would be on the look-out for the early signs and symptoms of carcinoma of the bronchi and of the lung, and diagnosis by various methods arrived at, such as by X ray examination with various aids, bronchoscopy, thoracoscopy, blood examinations, complement-fixation, &c. He confined his remarks to neoplasms. Innocent neoplasms were rarer than malignant ones, but now that the chest was being so frequently X rayed these were being found in larger numbers. The commonest innocent tumours in this region were dermoid cysts and fibromata, the dermoid cysts being generally in the anterior mediastinum. As a general principle Mr. Roberts said that if an innocent tumour in the chest was discovered before any symptoms arose from it it should be removed at that stage, as operative risks were then at a minimum. The two main modes of access to these growths were: (1) transpleurally, by a long intercostal incision; (2) by a sternum-splitting operation. A smoother convalescence followed the second method in tumours which filled the apex of the chest, and the first method for those of the middle and lower parts of the chest.

Concerning the primary sarcomata of the lung or mediastinum, these were best treated by X rays or by the implantation of radium. Final cure was not to be expected. Primary carcinoma of the lung seemed to have become more frequent in the last ten years, and it was met with in two main forms: (1) the commoner one commencing in the bronchus; (2) the rarer, starting in the parenchyma. In either case there was constriction of the lumen of a bronchus followed, at first with the absorption of the air beyond, retention of secretions, later on by bronchiectasis, lung abscess, and empyema. If such a patient were seen before infection it should be possible, from the altered breath sounds and percussion note, to suspect bronchial blockage and to discover its cause by bronchoscopy. Experimental work had shown that resection of uninfected lobes of lung could be carried out without great mortality, but when gross infection was added the mortality of that operation was very high. Parenchymatous growths were more amenable to surgery. The palliative treatment of carcinoma of the lung consisted in drainage of pulmonary abscesses and of secondary empyemata, bronchostomy to drain dilated bronchi, &c. The comfort to the patient rendered these procedures well worth while.

### *The Radiological Aspect.*

Dr. Stanley Melville gave an historical sketch of the progress of skiagraphy, and described the general contours and appearances of thoracic growths as he had met with them. Most of his contribution consisted of a demonstration of differential features as seen in the X ray plates, and the best methods of bringing out the diagnostic features.

Dr. Robert Knox also demonstrated a series of skiagrams with the same object, his chief purpose being to insist on the supreme importance of making a diagnosis before any attempt was made at treatment. He said that during the last year he had had six cases of aneurysm of the aorta sent to him for treatment under the impression that they were examples of malignant neoplasm; possibly on occasion he had treated with rays an aneurysm as a neoplasm. He showed skiagrams at different stages illustrating the value of X rays in causing the disappearance of such tumours as lymphosarcoma, and insisted that there was no need to carry out surgery in such cases in order to insert radium, as the curative effect of the rays was very remarkable. In some long-standing cases it was evident that the natural resistances of the body had become exhausted and no effort could be put forward by the patient to respond to the treatment.

### *Discussion.*

Dr. Hilton urged the induction of an artificial pneumothorax in order to facilitate not only the clarity of X ray pictures, but also surgery should that be necessary, as surgeons had remarked on the greater ease of operation on a collapsed lung. The air in the lung need only be slightly different from the normal, either at or just below the atmospheric pressure.

Sir John Briscoe demonstrated by means of the epidiascope the signs by which paralysis of one phrenic nerve could be definitely diagnosed. He said that in the last three years he had correctly diagnosed the condition in 41 cases. Of these cases 22 were primary growths in the thorax, 10 secondary, 6 due to syphilis (including aneurysm), and 3 to tubercle. The phrenic nerve on the right side was involved in 31 instances, on the left in 13, on both in 3. He insisted on the importance of examining these patients in a very quiet condition, and refraining from asking them to take a deep breath.

Dr. F. G. Chandler spoke on differential diagnosis and treatment. He urged early diagnosis of intrathoracic tumours, as it was only at that stage that hopeful surgery could be expected.

Dr. Devereux Forrest gave a detailed and analytical account of an investigation he had conducted in 152 post-mortem examinations in cases of carcinoma of the lung at the London Hospital from 1907 to 1925. All the cases were certified by Prof. Turnbull at the hospital as carcinoma. He had been unable to associate any particular occupation with the occurrence of these growths, the only notable point in this regard being that no agricultural labourer was in the list.

The President (Dr. Thursfield) combated the idea expressed by several speakers that these intrathoracic new growths were becoming more common. This appeared to have been founded on the increased number of such cases seen at the hospitals, but it must be remembered that the total admissions to London hospitals was nearly double in 1925 that of 1907, and patients passed through the hospitals more rapidly. Also considerable classes of cases had been removed from the wards of general hospitals, particularly tuberculous cases. Desperate carcinomata and other cases of the kind were now freely admitted, whereas within his own memory that was not the case. He did not believe the apparent increase in the kind of cases under discussion was a real one.

Mr. T. P. Dunhill submitted that the diagnosis of intrathoracic new growths from other conditions, even by the use of all the means now available, was often a very difficult matter. He showed skiagrams of three particular cases and pointed the lessons.

Dr. Willis said it seemed to be clear that, if looked for, these new growths in the thorax were not much less common than were malignant growths in other organs. He devoted special attention to the clinical aspect, as that was the one in which the disease first presented itself, and a study of the cases at this stage would result in their being recognised at the period when they could hopefully be operated upon. The symptoms fell into three groups according to the situation of the tumour, and these he fully entered into, describing cases in illustration.

The President, summing up the discussion, expressed his surprise that more had not been said about the early occurrence of dyspnœa in these cases. Often patients did not volunteer a complaint of dyspnœa, but a leading question mostly elicited it, and even when so gleaned he regarded it as a sign of more value than seemed to have been accorded to it by most of those who had spoken. A second point was that stressed by Sir John Briscoe—namely, the importance of the physician actually seeing the screening of the case; he should not be merely content with seeing the X ray plate, especially as in that case he was dependent on the radiographer's interpretation of it. This was of special importance when the case was one possessing a large element of doubt, for by means of the fluorescent screen various positions could be taken up and the whole case viewed critically.

Mr. Roberts, in reply, agreed with Dr. Hilton as to the advantage to the surgeon of the induction of a preliminary artificial pneumothorax, as well as its value in diagnosis. He had seen large external veins on the chest in innocent tumour cases, but not very large veins. He agreed that every diagnostic aid should be utilised in the case of these difficult tumours. If in the case of innocent tumours X ray pictures were taken at intervals to learn whether increase in growth had occurred, the same distance and other details should be observed every time. Otherwise a false impression might be derived.

Dr. Melville, in reply to Dr. Forrest, said he thought all clinicians were now agreed that one of the striking and constant features of intrathoracic new growths was displacement of the heart to the side of the lesion. With regard to the President's remark concerning the screen examination by the physician himself, radiologists as a body would welcome this intrusion into what was still too much the water-tight compartment of their specialty. Everything should be done to bring the physician and the radiologist into closer working relationship.

# Medical News.

University of Oxford.—At a recent Congregation the degrees of B.M., B.Ch. were conferred on R. G. Mathews (Queen's College) and D. O. Williams (Jesus College).

Society of Apothecaries of London.—At recent examinations the following candidates passed in the subjects indicated:—

*Surgery.*—J. Dywien, Guy's Hosp.; M. Escovar, Cambridge and London Hosp., A. C. Hill, Liverpool; J. E. Howard, St. Mary's Hosp.; J. Mindess, London Hosp.; L. A. Rostant, St. Thomas's Hosp., J. Shibko, Cardiff; and V. R. Smith, Manchester.

*Medicine.*—G. H. Bickmore, Charing Cross Hosp.; T. K. Clifford, Manchester; E. W. Hayward, Cambridge and London Hosp.; W. Johnson, St. Mary's Hosp.; J. M. Moran, Manchester; C. E. Nicholas, London Hosp.; I. Rivlin and G. H Weeber, Middlesex Hosp.; and J. M. F. Whitby, St. Thomas's Hosp.

*Forensic Medicine.*—C. B. Ball, Sheffield; T. K. Clifford, Manchester; E. W. Hayward, Cambridge and London Hosp.; C. H. St Johnston, Birmingham; G. H. Pereira, St. George's Hosp.; J. Shibko, Cardiff; and J. W. Whitney, London Hosp.

*Midwifery.*—N. H. C. Allen, Guy's Hosp.; F. W. Barton, Middlesex Hosp.; V. G. Crowley, Sydney and St. George's Hosp.; M. Escovar, Cambridge and London Hosp.; H. I. Jones, St. Mary's Hosp.; D. P. Mitra, Charing Cross Hosp.; and G. H. Pereira, St. George's Hosp.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: T. K. Clifford, V. G. Crowley, E. W. Hayward, J. Mindess, G. H. Pereira, and L. A. Rostant.

London School of Hygiene and Tropical Medicine.—In the recent sessional examination of the division of tropical medicine and hygiene the winner of the Duncan Medal was Mr. R. M. Morris, late house physician at the London Hospital.

University of Bristol.—At examinations held recently, the following candidates were successful:—

Examination for Degree of Ch.M. (in Gynæcology).
*Harry L. Shepherd.*

Final Examination for Degrees of M.B., Ch.B.

*Part I.*—John C. Batt, Winifred P. Brinckman, Alan M. Critchley, *Thomas F. Hewer, Reginald Jackson, John E. Martin, John R. E. Sansom, Maiprom Srisvasti, *Dorothy M. H. Tripp, and Edgar R. Wide.

* Distinction in Materia Medica, Pharmacy, Pharmacology and Therapeutics.

*Part II.—Second-class Honours.*—Charles B. Perry (distinction in Obstetrics).

*Pass.*—Geoffrey W. R. Bishop, Robert V. Cooke, Francis S. Dymond, Francis R. Gedye (distinction in Pathology and Forensic Medicine and Toxicology), Arthur P. Corham, Thomas P. Lalonde, Gilbert M. Minifie, Leslie B. Phillips, and Arthur S. Prowse.

*Group II only.*—George L. Feneley and Cecily France-Hayhurst.

The degree of M.D. has been conferred on Elizabeth Casson.

Ideal Home Exhibition.—The tenth *Daily Mail* Ideal Home Exhibition will be held at Olympia, London, from March 2nd to 27th. There will be sections devoted to the lighting, heating, and ventilation of houses.

Fellowship of Medicine and Post-Graduate Medical Association.—On March 4th, at 5 P.M., a lecture on Dyspepsia will be given by Dr. E. P. Poulton in the lecture room of the Medical Society, at 11, Chandos-street, London, W. This lecture is free to all members of the medical profession. Beginning on March 1st, there will be a special series of demonstrations on the Diagnosis and Treatment of Diseases of the Eye at the Royal Eye Hospital, St. George's Circus, Southwark. These demonstrations will be given by members of the staff and will take place at 3 P.M. daily for a fortnight. On Tuesdays and Thursdays throughout the month there will be a special course in bacteriology at the Westminster Hospital, and a two-hour session will be held on each of these days. On March 8th, and for the next three weeks, the Chelsea Hospital for Women will hold a special course in gynæcology. Operations, demonstrations, and lectures will take place daily. From March 13th to 27th the Brompton Hospital will hold an all-day course in Diseases of the Chest, and on the 16th the London School of Tropical Medicine will begin a series of eight clinical demonstrations, extending over four consecutive weeks, on Tuesdays and Thursdays at 2 P.M. For the benefit of those who are unable to devote the whole day to study, the Hampstead General Hospital is holding a special post-graduate course for practitioners from March 15th to 20th. The daily sessions will be held from 1.30 to 6 P.M., and will include clinical and surgical demonstrations and lectures. Copies of all syllabuses, of the general course programme, and of the *Post-Graduate Medical Journal* may be had on application to the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

UNIVERSITY OF LONDON.—Applications for grants from the Thomas Smythe Hughes Medical Research Fund, which are allocated annually for the purpose of assisting original medical research, should be sent in not earlier than May 1st and not later than June 15th. Particulars may be obtained from the Academic Registrar.—A studentship in physiology, of the value of £50 for one year and tenable in a laboratory or school of the University, will be awarded to a student or graduate annually. Applications must be received by the Principal Officer on or before May 31st.

INTERNATIONAL PHYSIOLOGICAL CONGRESS.—The twelfth congress is to be held at Stockholm from August 3rd to 6th. Those who wish to be enrolled as members should forward their names and addresses, together with the amount of their subscription (20 Swedish crowns), to Dr. G. Liljestrand, Karolinska Institutet, Stockholm. Further particulars will be given later.

PEOPLE'S LEAGUE OF HEALTH.—The League has arranged a series of six lectures on Diet: What We Should Eat and Why, to be delivered in the lecture-room of the Medical Society of London, 11, Chandos-street, Cavendish-square, London, beginning on Wednesday, March 10th, at 6 P.M. The following is a list of lecturers and subjects: Dr. Leonard Hill, F.R.S., The Nature and Purpose of Food; Prof. R. H. A. Plimmer, Vitamins; Dr. M. J. Rowlands, Diet in Relation to Tuberculosis and Rheumatism; Prof. W. Cullis, Food in Relation to Growth; Prof. V. H. Mottram, Common Errors in Diet; Prof. W. E. Dixon, F.R.S., Food Preservation and Adulteration.

*Lectures in Prisons and Borstal Institutions.*—The second series of the Sims Woodhead Elementary Course of Constructional Health Lectures has just been concluded by the People's League of Health at Wandsworth Prison and Borstal Institution, Rochester. The course was followed by a written examination, and certificates and prizes will be awarded to those who have gained the highest number of marks. This course has also been given at the Borstal institutions at Feltham and Aylesbury.

LEAGUE OF NATIONS AND MALARIA.—The health organisation of the League has arranged to hold next summer in London, Paris, and Hamburg, special laboratory courses on malaria. These will be reserved for medical officers. During its tours of Eastern and Southern Europe, the League's Malaria Commission was impressed by the fact that a number of countries were prevented from carrying on systematic antimalarial campaigns owing to the shortage of specially trained physicians. The health organisation, therefore, has decided to organise courses in malariology for young physicians desiring to specialise in this subject in order to become members of their public health administrations. The health committee has secured the collaboration of Dr. Andrew Balfour, director of the London School of Hygiene and Tropical Medicine, who will hold a theoretical and laboratory course in London, details of which may be obtained from the health section of the secretariat of the League of Nations at Geneva. Field work, lasting several months, in such malaria-infected countries as Corsica, Italy, Spain, Jugo-Slavia, and possibly Palestine, will follow the theoretical stage of the course.

INTERNATIONAL SOCIETY OF SURGERY. — As announced in our issue of Feb. 13th, the seventh congress will be held in Rome from April 7th to 10th. Prof. Giordano, of Venice, will be the President, and the subjects for discussion are: (1) Radium Treatment of Uterine Cancer. Speakers: Dr. O. Beuttner (Geneva), Dr. M. Donaldson and Dr. S. Forsdike (London), Dr. E. Pestolozza (Rome), Dr. G. Recasens (Madrid), and Dr. Regaud (Paris). (2) Abscess of the Liver: Dr. J. Domenici (Rome) and Dr. Petridis (Alexandria). (3) Treatment of Cerebral Tumours: Dr. A. W. Adson (Mayo Clinic), Dr. Bastianelli (Rome), Dr. de Martel (Paris), Mr. Percy Sargent (London), Dr. Brun (Lucerne), and Dr. M. Lozano (Saragossa). (4) Surgery of the Spleen: Dr. Cortes-Llado (Seville), Dr. Henschen (St. Gall), Dr. Leotta (Bari), Dr. Papayoannou (Ghezireh), and Dr. Patel (Lyons). (5) Late Results of Jacksonian Epilepsy: Dr. Leriche (Strasburg). Operations will be performed in the hospitals on two mornings. Two tours have been arranged in connexion with the congress: (1) A tour to Milan, Venice, Padua, Bologna, and Florence, starting from London on March 29th and arriving in Rome for the commencement of the congress. (2) A tour to Naples, Pompeii, Vesuvius, and the Isle of Capri, from April 13th to 16th. Messrs. Thos. Cook and Son, Ltd., have been appointed official agents and will quote inclusive fares based on the reductions granted by the Italian State railways to members of the congress, who may be accompanied by their wives and families. Further particulars may be obtained from the British delegate, Mr. J. E. H. Roberts, 26, Harley-street, London, W. 1.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—The Morison lectures will be delivered on March 1st, 3rd, and 5th, by Dr. R. D. Clarkson, in the hall of the College, at 5 P.M. The subjects of the three lectures will be the Definition of Mental Deficiency and the Classification of Mental Defectives; the Causes of Mental Deficiency; and the Treatment of Mental Defectives.

HEALTH LECTURES AT WILLESDEN.—Under the auspices of the Willesden Urban District Council a series of lectures on health will be given during March. The first, entitled the Foundations of Public Health, will be given at Pound-lane Council School, Willesden, N.W., on Thursday, March 4th, at 8 P.M., by Sir George Newman. On the three following Thursdays, at the same hour, there will be lectures by Dr. C. S. Thomson, Dr. H. B. Brackenbury, and Dr. C. W. Saleeby.

INSTITUTE OF HYGIENE.—A series of lectures on the Health of the Child of School Age is being given at 28, Portland-place, London, W., on Wednesdays, at 3.30 P.M. All interested in health problems may attend. On March 3rd Dr. Soltau Fenwick will speak on Disorders of the Digestive Organs during School Life; on March 10th Dr. C. E. Shelley will speak on the Incidence of Infectious Diseases in Public Schools; on March 17th Dr. R. Scott Stevenson will deal with Affections of the Ear, Nose, and Throat and their Prevention; and on March 24th Lieut.-Colonel R. H. Elliot will discuss Eye Troubles of School Life.

A STUDENTS' BED AT BIRMINGHAM.—The fourth bed endowed at the Queen's Hospital by the Birmingham University students has been dedicated by the Lord Mayor. The cost, £1250, was allocated from the proceeds of the students' carnival held last October, together with a further sum of £600 given to the general funds. These carnivals have been the means of contributing a total of £6800 to the hospital.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW. At a recent meeting at which the President, Prof. Archibald Young, took the chair, Mr. George Dalziel showed three cases of trigeminal neuralgia which had responded satisfactorily to injections of alcohol into the third branch of the fifth nerve. Mr. James Learmonth read a paper on Neuralgias of the Head and their Treatment, in which he recommended earlier resort to operation in trigeminal neuralgia. The best procedure was division of the sensory root of the fifth nerve between the ganglion and the pons, which gave instant and permanent relief at the cost of permanent anæsthesia over the distribution of the nerve. The technique he employed was that of Dr. A. W. Adson, neurological surgeon to the Mayo Clinic.

ORTHOPÆDIC HOSPITAL OF IRELAND.—The Incorporated Orthopædic Hospital of Ireland has now entered its jubilee year. The hospital was founded in 1876, mainly by the efforts of the late Mr. R. L. Swan. At first it consisted of six beds in Mr. Swan's own house at Usher's Island, Dublin. Seven years later it moved to Great Brunswick-street, where 48 beds were available. In 1902 it moved to its present site in Upper Merrion-street, and it has now 80 beds. During the 50 years of the life of the hospital some 30,000 children have been treated. Last year no less than 1576 children were treated. From the foundation of the hospital up to his death in 1916 Mr. Swan was surgeon to the hospital, and was its guiding and active spirit. To his surgery and foresight the crippled children of Ireland owe much.

LONDON CLINICAL SOCIETY.—The inaugural meeting of this society was held at the London Temperance Hospital, Hampstead-road, on Feb. 18th, Mr. H. J. Paterson, the president, in the chair. In his opening remarks the President said that the object of the society was to interest practitioners of the neighbourhood in the work of the Temperance Hospital, by offering them the opportunity of discussing cases of clinical interest in its wards. The chief guests of the evening were Sir StClair Thomson, who wished the society every success, and Sir Arbuthnot Lane, who gave an interesting discourse on the question: Is Civilisation a Failure? The answer, he considered, was in the affirmative. Savage races which had lived in happiness and health for hundreds of centuries degenerated and decayed as soon as civilisation touched them. The failure of civilisation lay in an alteration of the simple mechanical relationship Nature intended us to maintain towards our surroundings. This has caused alterations in human anatomy which had produced all the ills from which we suffered to-day. The lecture was illustrated by lantern slides. The first clinical evening of the society will be held on March 18th, when cases and specimens will be shown. Particulars of membership may be obtained from the Secretary, Dr. Philip Figdor, 150, Harley-street, W. 1.

OVERSEAS MEDICAL OFFICERS.—The annual reunion dinner of the Overseas Medical Officers will be held at the Exchange Hotel, Liverpool, on Thursday, March 4th, at 7.30 P.M. Tickets, price 12*s.* 6*d.*, may be obtained from Dr. J. W. Burns, 40, Rodney-street, Liverpool.

ABERDEEN ROYAL INFIRMARY.—For the first time for at least half a century this hospital has paid its way, and has, moreover, added £15,000 to its capital, notwithstanding that last year it treated a larger number of patients than ever before. Very soon, however, extensive additions will have to be made to the buildings. Workmen's contributions have now reached nearly £4000, and patients' contributions amounted to £2000.

COST OF THE SMOKE EVIL.—At a meeting of the Circle of Scientific, Technical, and Trade Journalists held in London on Feb. 10th, Dr. John S. Owens, of the Meteorological Office, said that the cost arising either directly or indirectly from smoke approximated in the case of London to 21*s.* per head per annum, in Manchester to 30*s.* per head, and in Pittsburg to 87*s.* per head. In London the cost was £7,000,000 a year, all of which could be saved if smoke was done away with. The cost to the whole country was colossal. All this was preventable, and the engineer was quite capable of dealing with the problems if only there was a strong public demand for a solution.

A MOSQUITO BITE CLAIM UNDER COMPENSATION ACT.—An unusual compensation action was heard recently at the Manchester County Court before Judge T. B. Leigh. The applicant was Mrs. Nora Robinson, of Ancoats, Manchester, a widow, who applied under the Workmen's Compensation Act in respect of the death of her husband, who had been employed as a donkeyman on board the ship *Tringa*, owned by the respondents, the British and Continental Steamship Company, Limited, of Liverpool. The fact that Robinson was bitten by a mosquito when the vessel was at Ghent on August 5th and died 13 days thereafter, when the vessel arrived in the Manchester Ship Canal, from septicæmia and pyæmia following cellulitis, was not disputed. The judge said that the *Tringa* at Ghent was unloading 300 or 400 yards from marshy land, which was the breeding-ground for mosquitoes. The lights of the ship were brighter than those on shore, and he was satisfied there was a greater danger of being bitten on board than there was in the town, where certain preventive precautions were taken. Robinson had to attend to two furnaces and was bound to have an unshaded electric light in order to do his work properly. The heat and light of the boiler house attracted mosquitoes, while Robinson had a smaller chance of avoiding their attacks than he would have had if he had not been at work. The judge held that the mosquito bite was an accident within the meaning of the Compensation Act and gave his award in favour of the applicant in the agreed sum of £334 with costs. Counsel for the respondents said he would like time to consider the position, and at his request a stay of execution was granted upon payment of the money into court within seven days.

CLINICS FOR RHEUMATIC PATIENTS.—At a conference of delegates of the Provincial Centre of the National Association of Trade Union Approved Societies held in Manchester on Feb. 16th, Mr. W. A. Appleton, secretary of the General Federation of Trade Unions, gave an address on the Incidence and Cost of Rheumatism. He said that an analysis of the medical certificates received at the office of the General Federation of Trade Unions showed that from 9 to 10 per cent. of the invalidity arose from rheumatic causes, and that 370,000 insured persons each year sought advice for some form of rheumatic disease or consequence thereof. Spas were available for the treatment of the rich. What was good for them might be equally good for the poor, but the existing capacity of the spas, allowing for an average 21 days per case for treatment, was not more than 12,000 persons per year. Clinics were needed for the benefit of those not likely to benefit by spa treatment—for experiment, for advice, and for the encouragement of those who might be treated in their own homes or by themselves. The cost of installation and maintenance of such clinics would be considerable. The Ministry of Health might agree to contributions on a pro-rata basis for the creation of several experimental clinics. A better, because a freer, way would be to secure several clinics by voluntary effort, and it ought not to be impossible to persuade every one of the million members of the Trade Union Federation of Approved Societies to raise sixpence to provide and equip a clinic in London and one in Manchester. Mr. Appleton suggested that the Federation should coöperate in the effort and in ascertaining from the Ministry of Health how far it would encourage collaboration for experimental purposes. One-seventh of the total sickness benefit, or nearly £2,000,000 a year, was paid to the insured population for invalidity from this disease.

# Parliamentary Intelligence.

## HOUSE OF COMMONS.

### WEDNESDAY, FEB. 17TH.

### *Tuberculosis in the Navy.*

Captain FAIRFAX asked the First Lord of the Admiralty whether the latest figures available showed any decrease of tuberculosis in the Navy; and whether he was satisfied that all reasonable precautions were enforced to prevent the spread of this disease.—Mr. DAVIDSON (Parliamentary Secretary to the Admiralty) replied: The ratio per 1000 invalided during the last four years was: 1922, 1·06; 1923, 1·01; 1924, 1·57; and 1925, 2·20. The answer to the second part of the question is in the affirmative.

### *Families Living in One and Two Rooms.*

Mr. THURTLE asked the Minister of Health if he had any figures in his department showing the number of persons living in England and Wales in homes of one room; and the number living in homes of two rooms.—Sir K. WOOD replied: According to the Census of 1921 there were in England and Wales 317,417 private families consisting of 623,800 persons occupying one room per family, and 917,058 private families, consisting of 2,831,802 persons, occupying two rooms per family.

### *Maternal Mortality.*

Mr. GROVES asked the Minister of Health the number of mothers who lost their lives from causes due to childbearing in England and Wales during 1923 and 1924; and the ratio of such deaths to the total births during the year.—Sir K. WOOD (Parliamentary Secretary to the Ministry of Health) replied: The following statement gives the number of deaths from these causes in 1923 and 1924 and the mortality rates per 1000 births registered:—

| — | 1923. | | 1924 | |
|---|---|---|---|---|
| | No. | Rate.* | No. | Rate.* |
| Deaths of women classed to pregnancy and childbearing | 2892 | 3·81 | 2847 | 3·90 |
| Deaths of women not classed to pregnancy and childbearing, but returned as associated therewith .. | 764 | 1·01 | 851 | 1·17 |
| Total .. .. .. | 3656 | 4·82 | 3698 | 5·07 |

* Mortality rate per 1000 births registered.

The number of births in England and Wales was 758,131 in 1923, and 729,923 in 1924.

Mr. GROVES asked the Minister of Health what improvement, if any, was manifest respecting the maternal mortality in rural, textile, and coal-mining areas; and whether it was the custom for all medical officers of health to investigate all maternal deaths due to childbirth, and all cases of puerperal fever whether fatal or not.—Sir K. WOOD replied: On present information my right hon. friend is unable to say that there has as yet been any general improvement in the maternal mortality rate in these areas, but the figures for 1925 are not yet available. As regards the second part of the question, the Circular issued by my right hon. friend's department in June, 1924, on the subject of maternal mortality impressed upon local authorities conducting maternity and child welfare schemes the desirability of competent medical investigation into all the maternal deaths and all cases of puerperal fever. The extent to which this practice is adopted varies in different areas.

### *Medical Examination at Labour Exchange.*

Mr. NEIL MACLEAN asked the Minister of Labour whether he was aware that a number of women who were signing at the Govan labour exchange had been called upon to undergo a medical examination by medical doctors at the exchange; whether he could state the reasons for this course and its purpose; whether the medical examination was compulsory on those called to undergo it; if not, whether women so called upon could refuse without prejudice to their claims for benefit; and under which statute these powers were operated by his department.—Sir A. STEEL-MAITLAND replied: I presume the hon. Member refers to a test which is being carried out with my consent by the Industrial Research Fatigue Board. Acceptance of the test, which is carried out by a woman doctor and a woman assistant, is absolutely voluntary and does not affect benefit in any way. The proposal of the Board was considered by a conference of women representatives of local employment committees in Glasgow who considered that it would be useful.

**Mr. Maclean**: Are we to take it that women who are going to the exchanges are told that they are to be examined by a lady doctor without it being explained that it is voluntary, and are they led to assume that if they do not undergo this medical examination their claim to benefit will be prejudiced and probably disallowed; and further, will the right hon. gentleman have this practice discontinued?

Sir A. **Steel-Maitland**: The hon. Member must not draw the inference that women are led to undergo any examination without being told that it is voluntary on their part. I will undertake to see that it shall be made quite clear that the examination is entirely voluntary and unconnected with benefit. On the other hand, inquiries by the Research Board are for the general good, and I should be very sorry to stop them.

### THURSDAY, FEB. 18TH.

### *Diseases Scheduled for Workmen's Compensation.*

Mr. **Jenkins** asked the Home Secretary the description of diseases under the Workmen's Compensation Acts Orders which had been scheduled by his department up to date.—Sir W. **Joynson-Hicks** replied: An up-to-date list of the scheduled diseases with their full descriptions will be found in Appendix II. of the Home Office Memorandum on the Acts which is printed and on sale. Over 30 diseases have been scheduled. In addition to the diseases scheduled under the general provisions of the Act of 1906 silicosis in certain industries has been dealt with under the special provisions of the Workmen's Compensation (Silicosis) Acts.

### *Physical Impairment of Rural Children.*

Mr. **Scurr** asked the President of the Board of Education whether his attention had been drawn to the report of the chief medical officer of the Board as to the deterioration in the physical standard of children in rural areas; and whether, in view of the effects on the nation, he proposed to take any action in the matter.—The **Duchess** of **Atholl** (Parliamentary Secretary to the Board of Education) replied: The report in question, while stating that there was a substantial degree of physical impairment among rural children, added that there were good grounds for believing that on the whole there was improvement, and in some rural areas great improvement. The remedy lies in the main along the lines on which the Board and local authorities have been steadily working in the past, and what is needed is perseverance on these lines, especially in regard to the replacement of unhealthy school buildings, rather than any new departure of policy. As regards the chief medical officer's recommendstion that children under 6 years of age in rural areas should be discouraged from attendance at school in certain circumstances, my right hon. friend is considering whether there is any advice which he can usefully tender to local authorities on this point.

### *Small-pox and Vaccination.*

Major **MacAndrew** asked the Minister of Health whether, in view of the spread of small-pox, he intended to resort to the more widespread use of vaccination.—Mr. N. **Chamberlain** replied: In areas invaded by small-pox it is the usual practice for the local authorities to urge the importance of vaccination and to announce the facilities for vaccination free of cost to all who desire it, but there is no statutory provision for compulsory vaccination, except in the case of children whose parents have not made declarations of conscientious objection to vaccination.

### *The General Medical Council.*

Mr. **Storry Deans** asked the Minister of Health whether he had considered the suggestion that the General Medical Council ought to contain a lay element; and, if so, having regard to the power of nomination conferred on the Crown by the Medical Act, 1886, he would take steps to secure that this power should be exercised by the appointment of laymen as and when vacancies arise.—Mr. N. **Chamberlain** replied: Yes, Sir, I have considered my hon. friend's suggestion and I will take an early opportunity of consulting the Lord President on the matter.

### *Milk and Dairies Order.*

Mr. **Robert Morrison** asked the Minister of Health if he was yet in a position to state when the draft orders made by him under Section 1 of the Milk and Dairies Act, 1915, would be published.—Mr. N. **Chamberlain** replied: I hope to publish the draft order in question in the course of a few weeks.

### *Tuberculosis in the Navy.*

Dr. V. **Davies** asked the First Lord of the Admiralty the number of officers and men who had been invalided out of the Service during the last three years, for which records were available, suffering from pulmonary tuberculosis; and in how many of these cases the disease had been considered as not attributable to the conditions of service.—Mr. **Davidson** replied: The total numbers of officers and men invalided for pulmonary tuberculosis during the years 1923, 1924, and 1925 were as follows: 1923, 132; 1924, 150; and 1925, 197. The numbers of these cases in which the disease has been considered as *not* attributable to the conditions of Service were as follows: 1923, 128; 1924, 145; and 1925, 192.

### MONDAY, FEB. 22ND.

### *Europeans and Indian Medical Service.*

Mr. **Robert Richardson** asked the Under-Secretary of State for India whether he would inform the House as to the proposals being made by the Government of India with a view to reserving the civil posts of the Indian Medical Service for Europeans.—Earl **Winterton** replied: This matter is still under consideration, and I regret that I am not at present able to make a statement.

### *Tuberculin Tests.*

Lieut.-Colonel **Fremantle** asked the Minister of Agriculture if he could give figures showing the number of milch cattle that had been subjected to the tuberculin test within the past year, and the number that had been reacted.—Sir K. **Wood** replied: There are very few official records of tuberculin tests other than those carried out for the purpose of the Milk (Special Regulations) Order. The number of cows tested for this purpose in 1924 was about 6000, the majority of which had already passed the test on one or more previous occasions, and the number which reacted in that year was 732. In 1925 the number tested and re-tested was nearly 7500, but I am not yet able to state the number of reactors.

### *Small-pox and Vaccination.*

Mr. **Lansbury** asked the Minister of Health whether he was aware that the outbreak of small-pox in the years 1901–02 coincided with an increase in the number of vaccinations performed in consequence of the passing of the Vaccination Act, 1898; and whether he would state the number of cases of small-pox notified in the years 1897, 1898, 1899, 1900, 1901, 1902, 1903, and 1904, and the number of infants vaccinated out of every hundred born in each of those years.—Sir K. **Wood** replied: It is the fact that the total numbers of vaccinations and revaccinations performed during 1901 and 1902 at the cost of the rates was considerably in excess of the numbers in previous years. But, as the primary object of the Vaccination Act, 1898, was to exempt from penalties parents who obtained certificates of conscientious objection to vaccination, this increase cannot, in my right hon. friend's opinion, be attributed to the passing of that Act, but rather to the fact that when small-pox is prevalent, as in 1901–02, it is usually found that large numbers of persons seek the protection afforded by vaccination. As regards the last part of the question, figures are not available showing the number of cases of small-pox notified during the years in question, but the following is a statement giving percentage of vaccinations to births in each of these cases:—

*Percentage of Vaccinations to Births.*—1897, 62·4; 1898, 61·0; 1899, 66·4; 1900, 68·7; 1901, 71·4; 1902, 74·8; 1903, 75·4; 1904, 75·3.

Mr. **Groves** asked the Minister of Health if he would request the committee which he had appointed to report from time to time on matters relating to vaccination, to furnish him in their first Report with replies to the following queries: what is the precise nature of the disease from which vaccine lymph is derived and how is its nature determined; what is a successful and efficient vaccination and for how long can it be guaranteed to remain so; how frequently has it been found possible to repeat vaccination on the same person; what is the relation of the possibility of frequently repeating vaccination to the question of immunity; and what means are recommended for ascertaining whether the immunity afforded by vaccination has lapsed.—Sir K. **Wood** replied: My right hon. friend will communicate these suggestions to the Committee on Vaccination for their consideration.

Mr. **Charles Williams** asked the Minister of Health what steps he was taking to inform the public of the efficiency of vaccination against small-pox, particularly in those areas where there was any sign of this disease.—Sir K. **Wood** replied: It is the duty of the local authorities of areas in which any case of small-pox occurs to urge the importance of vaccination and the efficiency of this method of protection against small-pox, and it is the usual practice of the local authorities to take these steps.

### *Death-rates in India.*

Mr. **Scurr** asked the Under-Secretary of State for India whether he could state the death-rate, adult and infantile, for Howrah for the last five years.—Earl **Winterton** replied: The latest information is as follows: The death-rates per 1000 of the population for all ages were as follows: 1919, 55·1; 1920, 48·5; 1921, 35·3; 1922, 29·8; 1923, 28·8. The rates of infantile mortality per 1000 births registered were: 1919, 303·9; 1920, 391·0; 1921, 281·1; 1922, 250·1; 1923, 263·9.

Mr. SCURR asked the Under-Secretary of State for India the death-rate, adult and infantile, for Cawnpore and cantonment for the last five years.—Earl WINTERTON replied: The latest information is as follows: The death-rates per mille for all ages were:—

*Cawnpore City.*—1919, 63·60; 1920, 60·34; 1921, 48·38; 1922, 41·53; 1923, 40·73.

*Cawnpore Cantonment.*—1919, 31·63; 1920, 23·89; 1921, 23·79; 1922, 15·60; 1923, 13·06. The infantile mortality rates in Cawnpore City per 1000 births registered were: 1920, 531·07; 1921, 580·67; 1922, 450·87; 1923, 405·17; 1924, 470·90. The rates for the cantonment are not available.

Mr. SCURR asked the Under-Secretary of State for India whether he could state the death-rate, adult and infantile, in the city of Calcutta and suburbs for the last five years.—Earl WINTERTON replied: The latest information is as follows: The death-rates per mille for all ages were: Calcutta (including suburbs), 1919, 42·2; 1920, 39·4; 1921, 33·5; 1922, 29·1; 1923, 28·1. Separate figures for the city and suburbs are not available. The rates of infantile mortality per 1000 births registered in Calcutta (including suburbs) were: 1919, 337·0; 1920,* 386·0; 1921, 330·5; 1922, 287·0; 1923, 291·6.

### TUESDAY, FEB. 23RD.

### *Deaths from Gas Poisoning.*

Mr. SCURR asked the President of the Board of Trade whether his attention had been called to the number of deaths occurring in London from gas poisoning; whether he was aware that coal gas in these days was poisonous because it contained water gas, the chief constituent of which was carbon monoxide; and whether, in view of these circumstances, he would cause an inquiry to be made with a view to making regulations for the better security of life.—Sir BURTON CHADWICK (*Parliamentary Secretary to the Board of Trade*) replied: Special provision is made for recording particulars of deaths attributed to poisoning by gas supplied for use by the public. During 1925, in the areas supplied by the three London gas companies, there were 27 such deaths in which either an open verdict or a verdict of accidental death was returned. I am aware that the use of water gas in towns gas increases the proportion of carbon monoxide beyond that found in ordinary coal gas. The hon. Member will be aware that the matter was reported upon in great detail in 1921, and the Government are watching the position most carefully and closely, but at present it is not considered that a further inquiry would serve any useful purpose.

### *Training of Midwives in Scotland.*

Dr. SHIELS asked the Secretary for Scotland, in view of the new regulations for the training of midwives coming into force in May of this year and the difficulty of meeting the full extra costs by increased fees to pupil nurses in the Scottish maternity hospitals, if he would try to secure for Scotland the same grants in aid which were promised for similar hospitals in England and Wales.—Sir J. GILMOUR replied: I regret that I am unable to take the action proposed for the reason stated in my answer to the question put by Captain Wedgwood Benn on Feb. 15th. In view of the interest of Members in this subject, and the difficulty of dealing adequately with it by the method of question and answer, I have had an explanatory memorandum prepared which I am forwarding to the hon. Member and which I should be glad to make available to Members interested. At the same time I fully appreciate the special difficulty with which the maternity hospitals may be faced, and am keeping it in view in considering the report of the Departmental Committee on the hospital position in Scotland.

### *Health of Women Telephonists.*

Mr. SPOOR asked the Postmaster-General if he could give any indication of the general health of women employed in post-office telephone exchanges; and whether any medical statistics were available showing the causes and prevalence of illness.—Sir W. MITCHELL-THOMSON replied: The statistics for 1924, which are the latest at present available, show that the average numbers of days of sick absence for telephonists were: In London, 13·6 days; in provincial districts of England and Wales, 12·2 days; in Scotland, 13·1 days; in Northern Ireland, 12·3 days. The average sick absence of the whole established female staff on the post-office in 1924 was 12·7 days. I regret that no statistics are available of the numbers of days' absence attributable to particular diseases.

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* The birth registration system is said to have been defective in this year.

# Medical Diary.

*Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.*

## SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, March 1st.—8.30 P.M., Social Evening. 9.30 P.M., Dr. Gustave Monod: Illustrated address, From Cagliostro to Coué; or, Imagination as a Method of Treatment.

TUESDAY.—8.30 P.M., ORTHOPÆDICS (Cases at 8.15 P.M.). Discussion: Late Results of Operation for Chronic Painful Hip. 8.30 P.M., PATHOLOGY, at the Lister Institute, Chelsea-gardens, S.W. Dr. E. E. Atkin: The Rationale of the Bile-Solubility Test. Mr. P. Bruce White: Some Observations on the Salt Stability of "Rough" Variants. Dr. F. M. Burnet: Experiments on the Influence of Ultra-violet Light and Hydrogen Peroxide on Bacterial Growth. Dr. G. H. Eagles: The Preparation of Toxic Filtrates of the Streptococcus.

WEDNESDAY.—8.30 P.M., SURGERY, MEDICINE, ELECTRO-THERAPEUTICS, THERAPEUTICS. Discussion: The Treatment of Exophthalmic Goitre.

THURSDAY.—5.15 P.M., BALNEOLOGY AND CLIMATOLOGY. Dr. F. G. Crookshank: Airs, Waters, and Places. 8 P.M., OBSTETRICS AND GYNÆCOLOGY. Dr. Herbert Spencer: Carcinoma Adenomatodes Cervicis Uteri. Mr. H. F. Symonds: A Method of Endoscopic Examination of the Uterus, with its Indications. Mr. C. Lane-Roberts: A Case of Pregnancy Complicated by Ureteric Calculus. Dr. G. Strachan: Vaginal Polypi in Infants with a Report of Two Cases. Dr. Gibbon FitzGibbon: A Revised Conception of Antepartum Accidental Hæmorrhage. Dr. Theobald: A Plea for Drastic Reforms in the Teaching and Practice of Midwifery.

*FRIDAY.*—5 P.M., *LARYNGOLOGY* (Cases at 4 P.M.). Discussion: Atrophic Rhinitis. 8.30 P.M., ANÆSTHETICS. *Dr. C. E. Lakin*: Anæsthesia in Relation to Disorders of the Circulation.

SATURDAY.—10.30 A.M., OTOLOGY (Cases at 9.45 A.M.). Sir William Milligan will read a paper. Mr. H. G. Estcourt (introduced by Mr. F. J. Cleminson): Gradenigo's Syndrome. *Demonstration*: Mr. A. R. Fried: Experiments on Ion Action.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, March 2nd.—5 P.M., *Prof. W. W. C. Topley*: *Experimental Epidemiology* (first Milroy Lecture).

*THURSDAY.*—5 P.M. (second Milroy Lecture).

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, London, W.

MONDAY, March 1st, to SATURDAY, March 6th.—Fellowship of Medicine Lecture, at the Medical Society, 11, Chandos-street, W. Thursday, at 5 P.M., Dr. E. P. Poulton: Dyspepsia. Free to all members of the medical profession. —ROYAL EYE HOSPITAL, St. George's Circus, Southwark, S.E. A series of Demonstrations on the Diagnosis and Treatment of Diseases of the Eye. Monday and Friday, at 3 P.M.—WESTMINSTER HOSPITAL, S.W. *Special Course in Bacteriology.* Two-hour sessions twice weekly on Tuesday and Thursday. General Laboratory Methods (Sterilising, Media making, and Staining, &c.). Further information from the Secretary of the Fellowship of Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, March 1st.—10 A.M., Surgical Out-patients: Mr. W. E. Tanner. 10.30 A.M., Gynæcological Operations: Mr. A. E. Giles: Throat, Nose, and Ear Operations: Mr. W. Ibbotson. 2 P.M., Medical, *Surgical, and* Gynæcological Clinics, Operations. 6.30 P.M., Venereal Department.

TUESDAY.—2 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics, Operations. 4.30 P.M., Mr. A. Goodwin: Treatment of Vaginal Discharges.

WEDNESDAY.—10.30 A.M., Surgical Operations: Mr. E. Gillespie. 2 P.M., Medical, Eye, and Skin Clinics, Operations. 5.30 P.M., Venereal Department.

THURSDAY.—10.30 A.M., Dental Out-patients: Mr. E. S. Pierrepont. 2 P.M., Medical, Surgical, and Throat, Nose and Ear Clinics, Operations. 5 P.M., Operations.

FRIDAY.—10.30 A.M., Eye Operations: Mr. N. Fleming. 2 P.M., Surgical, Medical, *and Children Clinics*, Operations. 3 P.M., Gynæcological *Clinic*. 6.30 P.M., Venereal Department.

UNIVERSITY COLLEGE HOSPITAL MEDICAL SCHOOL.

THURSDAY, March 4th.—5 P.M., Dr. G. V. Anrep: Regulation of the Coronary Circulation (Sydney Ringer Memorial Lecture).

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, March 5th.—4 P.M., *Dr. Dan McKenzie*: The Surgical Anatomy of the Temporal Bone (illustrated by lantern slides).

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.

WEDNESDAY, March 3rd.—Dr. Harrison: Gastric Analysis.

THURSDAY.—4 P.M., Dr. Thursfield: Idiopathic Purpura.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: February–March.

Clinical Lectures and Demonstrations.

Monday, March 1st.—2 p.m., Out-patient Clinic: Dr. Hinds Howell. 3.30 p.m., The Neuro-Muscular System, II., Motor Automatism: Dr. Kinnier Wilson.

Tuesday, March 2nd.—2 p.m., Out-patient Clinic: Dr. Walshe. 3.30 p.m., Syringomyelia: Dr. Hinds Howell.

Thursday, March 4th.—2 p.m., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 p.m., Neuro-Syphilis, II.: Dr. Riddoch.

Friday, March 5th.—2 p.m., Out-patient Clinic: Dr. Adie. 3.30 p.m., The Diagnosis of Muscular Atrophy which is Progressive: Dr. Collier.

The fee for the Course, including Pathology lectures, is £5 5*s.* For those who hold Perpetual Tickets the fee is £3 3*s.*

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 a.m., or at such other times as may be announced.

Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.

Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

J. G. Greenfield, Dean of Medical School.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester-square, W.C.

Tuesday, March 2nd.—5 p.m., Dr. Wilfrid Fox: Cutaneous Syphilis (2).

Thursday.—5 p.m., Dr. S. E. Dore: Alopecia.

ROYAL DENTAL HOSPITAL OF LONDON SCHOOL OF DENTAL SURGERY.

Wednesday, March 3rd.—8.30 p.m., Mr. F. St. J. Steadman: The Treatment of Overcrowding of the Dental Arches.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

Friday, March 5th.—3.30 p.m. (at the Royal Hospital), Mr. Townrow: Demonstration of Nose and Throat Cases.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

Tuesday, March 2nd.—4.15 p.m., Dr. F. Craven Moore: The Diagnosis of Nephritis.

Friday.—4.15 p.m., Dr. G. E. Loveday: Laboratory Demonstration.

ST. MARY'S HOSPITALS, MANCHESTER, POST-GRADUATE LECTURE.

Friday, March 5th.—4.30 p.m. (at Whitworth-street West Branch), Dr. J. W. Bride: Toxæmias of Pregnancy.

## Appointments.

Eynon, C. M., F.R.C.S. Edin., M.D. Ont., has been appointed Surgeon in Charge of a hospital in connexion with the Welland Canal construction at St. Catherine's, Ontario.

Taylor, R. S., M.B., Ch.B. Liverp., F.R.C.S. Edin., Honorary Surgeon to the Lock Department of the Royal Infirmary, Liverpool.

Sheffield Royal Hospital: Barron, D. C., M.D., Ch.B. Edin., Willey, H. L., M.B., B.Ch. Camb., Holdsworth, C. D., M.D., B.S. Lond., Pleasance, R. E., M.D., Ch.B. Sheff., Paige, E. F., M.B., Ch.B. Sheff., Honorary Clinical Assistants; Imrie, C. G., M.R.C.P. Lond., M.D. Ont., Medical Registrar; Yates, H. Blacow, M.B., B.Ch. Sheff., F.R.C.S., Surgical Registrar; Holmes, E., M.B., Ch.B. Leeds, Resident Surgical Officer; Drs. Everard, Walker, Fawcett, Hatherley, Jago, Sykes, L. Jago, and Flint, Resident Surgical Officers.

Certifying Surgeons under the Factory and Workshop Acts: Young, J. M., M.B., B.Ch. Belf. (Rothwell District of York); MacDiarmid, A. J., M.B., Ch.B. Aberd. (Ryde); Manson, M., M.D., Ch.B. Glasg., D.P.H. (Whitehaven, Cumberland); Firth, I. G. M., M.B., Ch.B. Aberd. (Tenbury, Worcestershire); and Anderson, D. H., M.B., C.M. Edin. (Tunbridge Wells; Smith, R. G., L.R.C.P. Lond., M.R.C.S. (Southend); Mansfield, H. Y., M.D., B.Ch. Camb. (Yarmouth, I.W.); Williams, H. C., M.B., B.Ch. Camb. (Alton); White, R. F., M.B., Ch.B. Bristol (Nailsea, Somerset).

## Vacancies.

*For further information refer to the advertisement columns.*

*Ayr County Hospital.*—Jun. H.S. At rate of £80 for first six months.

*Bath, Winsley Sanatorium.*—Asst. Res. M.O. £250.

*Birmingham General Hospital.*—Part-time Clin. Asst. in Ven. Dept. £350.

*Birmingham, Queen's Hospital.*—H.P., H.S.'s, Cas. H.S., and Res. Anæsthetists. Each £70.

*Bolingbroke Hospital, Wandsworth Common, S.W.*—Res. M.O. £200.

*Buxton, Derbyshire, Devonshire, Hospital.*—Asst. H.P. At rate of £150.

*Central London Ophthalmic Hospital, Judd-street, W.C*—Asst. S.

*Charing Cross Hospital.*—Surg. Reg., Med. Reg. Each £150. Also Obstet. Reg.

*Croydon Mental Hospital, Upper Warlingham, Surrey.*—Asst. M.O. £350.

*Derbyshire Royal Infirmary, Derby.*—Hon. Dental S.

*Dunfermline Burgh.*—M.O.H. £800.

*Essex Administrative County.*—Asst. Tuberculosis O. £700.

*Exeter, Royal Devon and Exeter Hospital.*—H.P. and Asst. H.S. Each at rate of £130.

*Freemasons Hospital and Nursing Home, 237, Fulham-road, Chelsea, S.W.*—Res. M.O. At rate of £250.

*General Lying-in Hospital, York-road, Lambeth, S.E.*—Res. M.O. At rate of £100.

*Hospital for Epilepsy and Paralysis, Maida Vale, W.*—Hon. Ear, Nose and Throat S.

*Italian Hospital, Queen-square, W.C.*—Hon. Ophth. S.

*Kettering and District General Hospital.*—Res. M.O. At rate of £150.

*Liverpool, Royal Southern Hospital.*—Hon. Asst. S.

*London County Council. Public Health Dept.*—Sen. M.O. £1219 12*s.* 10*d.*

*London Hospital, E.*—Vacancy on Hon. Surg. Staff. Gynæcological Reg. £400.

*Manchester, Royal Children's Hospital, Gartside-street.*—Asst. M.O. At rate of £150.

*Manchester, Royal Children's Hospital, Pendlebury.*—Res. Surg. O. At rate of £80.

*Manchester Royal Eye Hospital.*—Jun. H.S. £120.

*National Hospital for Diseases of the Heart, Westmoreland-street, W.*—Res. M.O. At rate of £150.

*National Hospital for the Paralysed and Epileptic, Queen-square, W.C.*—Med. Reg. £200.

*Northumberland County Council, Wooley Sanatorium, near Hexham.*—Asst. Med. Supt., &c. £600.

*Nottingham General Hospital.*—H.P. At rate of £150.

*Nottingham, Ransom Sanatorium.*—Asst. Res. M.O. £375.

*Oxford, Radcliffe Infirmary and County Hospital.*—Cas. H.S. At rate of £120.

*Plymouth, Homœopathic and General Hospital.*—H.S. £150.

*Plymouth, Udal Torre Sanatorium. Yelverton.*—Res. M.O. £450.

*Queen Charlotte's Maternity Hospital, Marylebone-road, N.W.*—Dist. Res. M.O. At rate of £80.

*Queen Mary's Hospital for the East End, Stratford, E.*—Hon. Asst. Obstet. S.

*Queen's Hospital for Children, Hackney-road, Bethnal Green, E.*—H.S. At rate of £100. Res. M.O. £200. H.P. At rate of £100.

*Richmond, Surrey, Royal Hospital.*—Hon. S. to Out-patients.

*Royal Free Hospital and Lond. Sch. of Medicine for Women, Gray's Inn-road, W.C.*—Sen. Asst. Path. Full-time. £600.

*Royal Northern Hospital, Holloway, N.*—H.S. and Obstet. H.S. Each at rate of £70.

*St. John's Hospital, Lewisham, S.E.*—Res. H.S. At rate of £100.

*St. Mary Abbots Hospital, Marloes-road, Kensington.*—Asst. Res. M.O. £450.

*St. Mary's Hospital, W.*—Second Asst. Pathologist. £250.

*Salford County Borough, Infectious Dis. Hosp., Ladywell Sanat., Pendleton.*—Res. M.O. £350.

*Salford Royal Hospital.*—H.P. and H.S. Each at rate of £125.

*Salisbury General Infirmary.*—H.S. £150.

*Samaritan Free Hospital for Women, Marylebone-road, N.W.*—H.S. At rate of £100.

*Singapore Municipality, Straits Settlements.*—Asst. Health O. £1008.

*Southampton, Royal South Hants and Southampton Hospital.*—Jun. H.S. At rate of £150.

*Stoke-on-Trent, North Staffordshire Royal Infirmary.*—Jun. H.P. £125.

*West London Hospital, Hammersmith, W.*—H.P. and two H.S.'s. Each at rate of £100.

*Western Ophthalmic Hospital, Marylebone-road, N.W.*—Sen. and Jun. H.S.'s. At rate of £150 and £100 respectively.

*Windsor, King Edward VII. Hospital*—Hon. Asst. S.

*York County Hospital.*—H.P. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacancy for a Certifying Factory Surgeon at Caerleon, Monmouth.

## Births, Marriages, and Deaths.

### BIRTHS.

Hearn.—On Feb. 16th, at Buckland-crescent, Hampstead, N.W., the wife of Reginald J. Hearn, M.D., of a daughter.

Oliver.—On Feb. 13th, at Edgefield, St. Peters, Jersey, C.I., the wife of Dr. H. G. Oliver, M.C., of a daughter.

Schlesinger.—On Feb. 16th, at Hollycroft-avenue, N.W., the wife of Bernard E. Schlesinger, M.B., B.Ch., M.R.C.P., of a son.

Wright.—On Feb. 15th, at Warwick Lodge, Warwick-avenue, W., the wife of Dr. E. T. Wright, of a daughter.

### DEATHS.

Derham-Reid.—On Feb. 17th, at his residence, Auchinellan, St. Helens-road, Bolton, Major James Derham Reid, M.C., R.A.M.C. T. (retd.), M.R.C.S. Eng., L.R.C.P. Lond., of Auchinellan, Argyll.

Roberts.—On Feb. 18th, at Southport, Lieut.-Colonel Hugh Jones Roberts, F.R.C.S., D.L., J.P., of "Llywenarth," Penygroes, Carnarvonshire.

Smith.—On Feb. 18th, at St. George's-road, Wimbledon, Surrey, William Woodriff Smith, M.D., in his 82nd year.

Swann.—On Feb. 16th, at Cambridge, from blood poisoning contracted while performing a post-mortem examination, Meredith Blake Robson Swann, M.D., Fellow of Gonville and Caius College, aged 32 years.

*N.B.—A fee 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## SOME MEDICAL INVENTORS.

PATENT offices have for some time been attracting attention, it being felt by authority on both sides of the Atlantic that reform is needed in a sphere where much human endeavour continues to be wasted. In the United States, where it has hitherto been necessary for patentees to present complete models of their inventions with their specifications, it has even been proposed to burn the museum devoted to the display of patents. At the rate that models accumulate in an intensely inventive atmosphere, Washington is in danger of becoming a museum of machines. Hence the proposed holocaust.

### *Sewing-machine and Steam.*

Were this to take place much that is curious would be destroyed, and much designed to promote human welfare. That many of the projectors were medical men goes without saying, for medical men are clever with their fingers and prone to find out short cuts in manipulative procedure. Surgeons have, indeed, invented innumerable instruments and surgical contrivances, but what is not generally known is that medical men have often been what may be called lay inventors. Sometimes their contribution to public utility and the culture-drifts of civilisation has been indirect. Thus William Rawlings Beaumont, M.D., F.R.C.S. (1803–1875), was quite unintentionally the originator of Singer's variant of the sewing-machine. In 1836 he invented a small contrivance for stitching cleft palate, now in the museum of the Royal College of Surgeons, and this, when exhibited in a shop window in New York, caught the eye of Mr. Isaac M. Singer, who adapted its principle to his sewing-machine. Singer made a large fortune. Beaumont, on the other hand, died far from a millionaire. In 1867 he writes to his correspondent, Thomas Madden Stone, secretary of the Royal College of Surgeons of England: "I am obliged to work on at my profession (probably the better for me), tho' it has been but a profitless occupation, for I was really much better off in a pecuniary point of view above 30 years ago than I am now. I made from the first the mistake of not becoming a general practitioner—of not practising midwifery." At the time of writing, although blind of one eye, he was still operating and still the admired professor of clinical surgery at the University of Toronto. It is noteworthy, however, that he says nothing here of his famous observation on gastric digestion in the case of Alexis St. Martin, nor of his numerous inventions. It was left to his clever fussy correspondent, "Tommy" Stone, to boom the surgical sewing-machine in THE LANCET, when he wrote of this instrument as "destined to make an epoch in the world's history." The sewing machine on Singer's plan is, relatively speaking, no great matter, and we ask: What of the major discoveries and inventions? What of steam, for instance? And has there been a medical name in the process of the slow evolution of the steam-engine? It is doubtful, indeed, whether Dr. Peter Chamberlen (1601–83), to whom the invention of the short midwifery forceps is perhaps erroneously attributed, had got hold of the idea of the locomotive engine when, in 1662, he petitioned Parliament for an Act to protect "the new invention of navigating with all winds in a straight line." He had patented this invention in France, the Netherlands, and Venice, and now asked the English Parliament to protect him; but as he refused to show a model of his invention, it is difficult to see what Parliament could protect beyond a secret. Peter Chamberlen's life, wrote Sir Norman Moore, "was one long succession of schemes." In 1618 he sought to institute "public artificial baths" by Act of Parliament. In 1619 he proposed to propel carriages by wind, and his petition of 1662 may refer to these. More probably, however, it has to do with an apparatus for navigating vessels in a straight line in all winds. In 1730 Dr. John Allen patented two inventions which, if they had been carried out, would probably have resulted in the first steam-boat. He proposed to construct an engine for raising water by means of fire, which, when placed in a ship, would force water out of the stern, thus enabling the ship to move in a calm.

### *Shorthand and Sanitation.*

Minor inventions by physicians were noted in 1917 by that careful antiquarian, the late Dr. Samuel Dodd Clippingdale. Thus Dr. Timothy Bright, of Cambridge, was the inventor of modern shorthand as opposed to the lost art described by him in his work, "Characterie" in 1588. Dr. David Bridges, of Hull, in about the year 1780, invented spermaceti candles. Dr. Neil Arnott was the inventor about the year 1832 of a ventilating chimney and a smokeless grate. Traction of barges by horses instead of by men is said to have been introduced by Dr. Battle, of Marlow. The Gatling gun is named after Dr. Richard Gatling, who invented this form of artillery in 1861. And, finally, the guillotine is named after Dr. Joseph Ignatius Guillotin.

These were physicians; the surgeons who have made useful inventions are more numerous.

On reference to the enormous index to the "Roll" of the Fellows of the Royal College of Surgeons of England which, regrettably enough, remains in MS., a respectable list may be made out of what are properly lay inventions due to the genius of surgeons. Proceeding alphabetically from the above-mentioned Rawlings Beaumont we come to Peter Hinckes Bird, F.R.C.S. (1827–61), who in 1863 was the inventor of a "costless system of ventilation." This suggests no more than open windows, though the inventor received several certificates and medals, and the invention was fully described in *The Builder*, March 1st, 1863. Charles Brooke, F.R.C.S. (1801–79), was twenty-third wrangler in 1827, and a most distinguished inventor. He was the author of some improvements in microscopy, but his fame chiefly rests on his barometers, thermometers, psychrometers, and magnetometers, which registered their variations photographically and were known as "self-recording instruments." They were adopted by the Royal Observatories of Greenwich, Paris, and other meteorological stations, and brought their author the premium offered by the Government as well as a council medal at the Great Exhibition of 1851.

Medical men have naturally played a part in sanitary reform, such as the introduction of improved drainage, water-supply, gas-lighting, and so forth. In this sense hosts of little-known practitioners have been innovators, if not inventors. The dress of the City policemen was designed by a surgeon, George Borlase Childs, F.R.C.S., who was born in 1816 and was for many years surgeon-in-chief to the City of London police. He, in fact, in 1861 introduced the helmet as we now know it, and thus emphatically contributed to the *mise en scène* of London streets.

### *Miscellaneous Inventions.*

Surg.-General Saville Marriott Pelly, C.B., F.R.C.S. (1819–93), was the inventor of an electric clock, though this is somewhat overshadowed by his electric stethoscope, which enabled all the members of a class to listen at the same time to one heart. Like many others, Pelly made both lay and medical inventions. Such inventors were George Armstrong Peters, M.B., F.R.C.S. (1839–1907), who invented a self-registering rifle-target, which is named after him; Sir William Rae, C.B., M.D., F.R.C.S. (1786–1873), who invented an apparatus for distilling water; and George Rowell, M.D., F.R.C.S., who died about 20 years ago and was the inventor of a milligrade thermometer. In the same useful category as the policeman's helmet must be classed the sweeping-machine for use in city streets, which we owe to Sir Edwin Saunders, F.R.C.S., the dentist to Queen Victoria (1814–1901). A prolific inventor and remarkable man was Alfred Smee, F.R.C.S., F.R.S. (1818–77), a son of the accountant-general to the Bank of England, who lived in the bank with his father. On the recommendation of Sir Astley Cooper he was appointed surgeon to the bank, Cooper being of opinion that his genius as a man of science might be turned to good account there. He invented Smee's battery, which is named after him, and used for trade purposes. We also owe to him durable writing ink (1813), and the present system of printing cheques and notes at the Bank of England, finally perfected by him in conjunction with two others in 1854, when, as Sir D'Arcy Power says in the "Dictionary of National Biography," "certain modifications were introduced into the manufacture of the notes to prevent or render it impossible any longer to split them." To James Startin, F.R.C.S. (1806–72), otherwise a fertile surgical inventor, we owe a process for stiffening felt hats; and to the famous James Syme, D.C.L. Oxon., M.D., F.R.C.S. (1799–1870), is due water-proofing (caoutchouc in solution applied to the preparation of waterproof cloth). Syme gained nothing by his discovery, which was patented by a Glasgow manufacturer. "Mackintoshes" are, however, not attributed to the patentee in Scotland always, and in France they are called "Macfarlanes," as though their wearers were conscious of some misstatement in the English name. To Robert Temple Wright, M.D., F.R.C.S. (1813–1902), of the Indian Army, is due the vermin-free "Indian Bungalow," the Milver ambulance cart, and various improvements in military kit.

Some inventions of medical men appear humorous. Thus Sir William Petty, professor of anatomy at Oxford and a famous political economist, tickled both Charles II. and Pepys with his invention of a boat with two keels. Dr Francis Moore originated "Old Moore"; and, latterly, William Henry Stone, M.A., F.R.C.S., censor of the Royal College of Physicians in 1884, struck a quaint note with his bassoon capable of uttering a sound lower in the scale than any hitherto emitted.

The attribution of inventions is a delicate matter. Yet it is to the credit of the profession that so few are quarrelled over. Instruments are too often quietly ceded by their medical inventors to the manufacturers and the instrument makers. We can, in a long list, only find one instrument—and that not a surgical one—claimed by two surgeons. Thus, Lund's well-known "corkscrew lever" seems to have been claimed by another. But neither surgeon fought over the matter. Often, too, inventions are, properly speaking, only first thought of by medical men and perfected by others. In the region of ideas such inventions might be called originations. Thus we might have cited Mouat's origination of the Indian universities, and class in the same category John Postgate's initiation of the later legislation against adulteration. John Postgate, F.R.C.S. (1820–81), started life as a grocer's boy, and having observed the tricks of the trade was led into a long campaign against impure food, which terminated in the passing of the Sale of Food and Drugs Act in 1875.

## "SABBIATURA."

OF quite recent years the public have discovered for themselves the sensations of well-being which are to be derived from the warm sand-bath, and at some continental seaside resorts part of the day's sanitary régime consists of being buried and burying others in the hot expanse of the shores. Apart from physical enjoyment the hot sand-bath has properties which have been found useful in the treatment of such conditions as rheumatism, rheumatoid arthritis, neuritis, lumbago, sciatica, and forms of chronic synovitis, the treatment in these directions being specially studied and applied at the little old town of Alassio which is situated on the Italian Riviera, between Porto Mauritzio and Albenga, 23 miles from San Remo, where there is a fine strip of pure silica sands some three miles long. Unlike most places on the Italian Riviera, Alassio has both a winter and summer season, and during the latter period the dress of both sexes mainly consists of bright-coloured towelling with a shady head covering. There is practically no tide, and bathing in the warm water is safe even for children. The sabbiatura, as the hot sand-bath treatment is called, is carried out from the middle of May to the middle of September. A trench is prepared in the early morning and allowed to absorb the full heat of the sun till half an hour before noon when the patient is put into it and covered with the hot, dry sand. Here he remains for half an hour, during which time profuse perspiration takes place; he emerges coated thickly with wet sand. A plunge in the sea closes the sand-bath and washes the skin, and the patient emerges from the water invigorated and with a hearty appetite. A course of baths usually lasts from four to five weeks, but in transient cases of trouble may be shorter, and longer in more obstinate maladies. Medical supervision of these baths is offered at the Villa Iris, beautifully surrounded by a garden of palms and fruit and flowering trees under the shelter of Cape San Croce. Here heliotherapy and physical exercises are carried out all the year round under the direction of Dr. F. A. Barton, the superintendent of the treatment centre.

## MULE-SPINNERS' CANCER.

Dr. Archibald Leitch, director of the Cancer Hospital Research Institute, London, and who was awarded the Manchester Christie Hospital prize for his last year's work, gave an address on mule-spinners' cancer at Manchester University on Feb. 19th. After describing in detail the work already done, he suggested that some of the first research undertaken by the Manchester Cancer Committee might be directed towards the discovery of a harmless non-irritant oil for use in cotton-mills. Until an oil was discovered which did not provoke the disease or until some method had been devised by which the spinner could be kept from contact with the oil, the only remedy for spinners' cancer was to have frequent medical inspection, so that the earliest lesions could be detected at a stage at which the disease could be prevented. A Government committee had been inquiring into the subject and would make its report shortly. The work of the committee was based in the first place on the work, about three years ago, of two Manchester surgeons, Mr. A. H. Southam and Mr. S. R. Wilson, and on information about the incidence of the disease which had been collected by Dr. S. A. Henry, medical inspector of factories. The records of the Manchester Royal Infirmary for 20 years showed that of 141 cases of cancer of the scrotum 69 had occurred in mule-spinners. During the last 50 years Dr. Henry had traced 530 cases of mule-spinners' cancer, the earliest record being in 1887. Yet two or three years ago neither the spinners nor their well-organised union had ever heard of the disease. In the general community the incidence was 4·1 per million; among spinners it was 134 per million; among chimney sweeps 534, and among patent fuel workers 608. There were about 23,000 mule-spinners in the country, and between the ages of 25 and 35 they were 11 times more liable to the disease than other people. From the ages of 45 to 65 their liability was 60 times that of the general population, and from 65 to 85 it was 100 times. The incidence of this form of cancer was not, however, connected with age; it varied with the length of time during which the operative had been subjected to the irritant, and was higher amongst the older men because they had been mule-spinners longer. The average time for the development of the disease was about 40 years. No case was known to have occurred in less than 10 years, and the longest time taken for development was 63 years. Dr. Leitch gave an historical account of the few cases that were discovered amongst tar-workers in Germany, amongst pitch-workers in South Wales, and in the shale oil industries in Scotland—in all about a score of cases in 50 years. The few isolated cases on the Continent were due to contact with crude oil, but the Lancashire cases among mule-spinners were due to contact with refined oils. The disease could be recognised before cancer had actually developed, and if caught in time could be prevented. Sometimes there was a delayed action and a person was not necessarily immune after he had left the trade. All workers were exposed to the oil, but only a very small proportion of them developed cancer. There was no such thing as a special susceptibility. A person might be liable to it at one time and not at another, just as to any other disease, and when once the cancerous stage was reached the only effective remedy was surgical.

## POISONOUS SPIDERS.

THE greater part of the current number of *Memorias do Instituto de Butantan* (1925, Tomo II., Fasciculo Unico, Santo Paulo, Brazil) is taken up by an elaborate and interesting study of poisonous spiders, which are, unfortunately, somewhat numerous on the South American continent and also in various other parts of the world, including some European countries. The Italian tarantula is the most famous of all these pests, and the authors, Dr. Brazil and Dr. Velland, discuss briefly the question of tarantulism, epidemics of which were said to occur in the seventeenth and eighteenth centuries.

After a short historical retrospect, they give the results of their experimental investigation on the venom of several species, with a description of their technique, and describe the different effects, local and general, of the venoms of different species, and the results obtained by inoculation into animals. By the progressive inoculation of sheep they succeeded in obtaining a very active antiserum for the venom of two species and they recommend this method of treatment. There are a number of excellent illustrations, showing the spiders themselves, their poison glands (macroscopically and microscopically), and the lesions produced by them in men and animals. The lesions of some species are extensive local necroses, whilst the venom of others, which are far more deadly, acts mainly on the nervous system and is said to be as potent as that of the more dangerous snakes. There is an extensive bibliography at the end of the article.

## CHRONIC NASAL DISCHARGE IN CHILDREN.

*To the Editor of* THE LANCET.

SIR,—With reference to the article on this subject in THE LANCET (1925, ii., 1132), in which the removal of foreign bodies from the nose is touched on, I should like to call attention to a very simple method that was shown us many years ago at Guy's by Mr. F. J. Steward. An ordinary butterfly-wing grooved director is taken and passed up the nasal cavity more or less parallel to the roof till its point is well above the foreign body; the portion of the director outside the nose is then raised till the point inside the nose is depressed sufficiently to come in contact with the floor; it is then "dragged out" of the nose, the point being kept in contact with the floor all the time, so that the foreign body is expelled in front of it.

Children in these parts not uncommonly push a seed of the Imli tree up their nose; this is about the size of a large "broad bean" and very quickly becomes too soft to be grasped by forceps but is easily removed in the manner described. This method is equally useful in dealing with hard, smooth spherical bodies such as large beads, pebbles, or marbles.

I am, Sir, yours faithfully,
H. WATTS,
Lieut.-Col., I.M.S.

Betul, C.P., India, Feb. 2nd, 1926.

THE new address of the Food Education Society is 24, Tufton-street (Great Smith-street), Westminster, S.W. 1. Tel.: Victoria 7145.

### THE FIRST (1926)

# Milroy Lecture

### ON

# EXPERIMENTAL EPIDEMIOLOGY.

*Delivered before the Royal College of Physicians of London on March 2nd*

By W. W. C. TOPLEY, M.D. Camb., F.R.C.P. Lond.,
PROFESSOR OF BACTERIOLOGY, UNIVERSITY OF MANCHESTER.

The section of the Founder's "Suggestions" which justifies me in bringing to your notice the experiments which I propose to describe is, I think, worth quoting, for it shows the breadth of his outlook on the problems of preventive medicine. Written in 1877, it runs as follows:—

> "As there is good reason to believe that the science of Human Pathology would be profitably advanced by a better knowledge, than is possessed by most medical men in this country, of the diseases of the lower animals, and especially of domesticated animals, I would suggest that the occasional examination of various topics relating to Epizootics and to general Comparative Pathology might possibly be introduced with advantage as a subject for a few lectures.
>
> "In the present day, when we hear so much about various spreading Epizootics, respecting the origin and modes of the diffusion and the distribution of which there appears to be considerable diversity of opinion among educated Veterinary practitioners, it might be desirable, as it seems to me, that the evidence collected by competent Veterinarians from a sufficient number of well-verified data, should, in the interests of Science and of the public welfare, be from time to time weighed and sifted by medical men who have paid special attention to the study of the course of epidemics among the human race, in order to determine whether the natural laws which regulate or affect the development and progress of the two classes of morbid phenomena are analogous, or otherwise. Such comparative scrutiny could scarcely fail to advance the cause of general scientific truth, and would serve also to the elucidation of sound principles for the guidance of safe prophylactic and preventive legislation."

I have departed from the letter of the Founder's injunction only in selecting as material for study small laboratory animals, which can be bred and observed under strictly controlled conditions, so replacing the method of simple observation by the method of experiment. From its spirit I do not think that I have departed at all.

The view which Dr. Milroy expressed 50 years ago, that the diseases of man and animals should be studied in close relation to one another, has steadily gained adherents. The liaison between human and veterinary pathology, which has developed so rapidly in recent years, will, I believe, lead to a rapid advance in our knowledge of disease in general and of infective processes in particular. In this country we owe a great debt to the late Sir Clifford Allbutt for his persistent advocacy of the more thorough study of comparative pathology. The problems of epidemiology, of the incidence of disease on herds rather than on individuals, have attracted many of the masters of medicine. The subject is intrinsically interesting as a purely biological problem, and it touches so closely the future welfare of the human species that it cannot be ignored by any who are concerned with the development of our social organisation.

It would take too long to discuss in any detail the different methods of approach towards the main problems of epidemic disease, which have been followed by investigators in the past; moreover, this question has recently been dealt with elsewhere. I should like, however, to record my personal conviction that our present lack of knowledge is largely the outcome of faulty methods of inquiry. If it be true, as I believe, that the origin and spread of any epidemic of microbial infection depends upon variations in the normally existing relations between living organisms, and that the actual outbreak of disease, the occurrence of clinically recognisable cases, is only the end-result of a progressive disturbance of this normal equilibrium, then the problem passes from the strictly medical to the general biological field.

When the study of epidemic disease as a general phenomenon is established on a firmer scientific basis, it may, I think, come to be recognised that the epidemiological Apostolic Succession has passed not through Hippocrates and Sydenham, but through Aristotle and Darwin. I would hazard the guess that the "Origin of Species" will one day be regarded as the most important single contribution to the canon of preventive medicine, and it is interesting to note that the rôle of disease as a selective agent was not ignored by Darwin himself. In his chapter on the Struggle for Existence he writes:

> "When a species, owing to highly favourable circumstances, increases inordinately in numbers in a small tract, epidemics—at least, this seems generally to occur in our game animals—often ensue; and here we have a limiting check independent of the struggle for life. But even some of these so-called epidemics appear to be due to parasitic worms, which have from some cause, possibly in part through facility of diffusion amongst the crowded animals, been disproportionably favoured; and here comes in a sort of struggle between the parasite and its prey."

It will be generally admitted that the more we know of the microbial parasite of any given disease, of its normal distribution in nature, and of its mode of conveyance from host to host, the more successful we are likely to be in snapping some link in the chain of causation which leads up to the epidemic prevalence of the disease in question. It is significant that some of our most striking successes have lain in the field of tropical medicine and in diseases in which an insect vector of infection is involved. Perhaps one of the most perfect examples of the application of biological science to the prevention of disease is afforded by the success which has been attained by stocking stagnant or slowly-moving collections of surface water with top-feeding minnows; which feed on the larvæ; which would develop into the mosquitoes; which would transmit the malarial parasite from host to host.

This is nothing but the application to preventive medicine of Darwin's account of the red clover. As you will remember, it runs:

> "From experiments which I have lately tried I have found that the visits of bees are necessary for the fertilisation of some kinds of clover; but humble-bees alone visit the red clover (*Trifolium pratense*), as other bees cannot reach the nectar. Hence I have very little doubt that if the whole genus of humble-bees became extinct or very rare in England, the heartsease and red clover would become very rare, or wholly disappear. The number of humble-bees in any district depends in a great degree on the number of field mice, which destroy their combs and nests; and Mr. H. Newman, who has long attended to the habits of humble-bees, believes that more than two-thirds of them are thus destroyed all over England. Now the number of mice is largely dependent, as everyone knows, on the number of cats; and Mr. Newman says: 'Near villages and small towns I have found the nests of humble-bees more numerous than elsewhere, which I attribute to the number of cats that destroy the mice.' Hence it is quite credible that the presence of a feline animal in large numbers in a district might determine, through the intervention first of mice and then of bees, the frequency of certain flowers in that district."

The successful prevention of microbial disease has, however, by no means been confined to diseases in which we can eliminate, or reduce to negligible numbers, some insect vector of infection. In my concluding lecture I shall refer briefly to some of the more striking examples, in which an adequate knowledge of the biological factors involved has enabled us to bring about a significant reduction in the ravages of some particular infective disease. All such examples teach the same lesson, the need of a wide biological outlook, if such problems are to be solved. It follows that those methods which have proved their value in general biological research are likely to help us here. Among those methods, both direct experiment and biometry have proved their worth beyond all question. I hope to convince you that the application of a combination of these methods to the study of the spread of epidemic disease promises to yield results of some interest.

It is just seven years since I brought to the notice of this College, in the Goulstonian lectures,[1] some preliminary experiments on the spread of bacterial infection among mice. Since that date I have been largely occupied with experiments designed to yield further information on the same problem.[2-16] It soon became evident that the data derived from such experiments would require analysis by statistical methods far beyond my own capacity, and it was my great good fortune to interest Dr. Major Greenwood in this line of investigation. For the last five years we have worked in close coöperation, and all those experiments, which have seemed likely to yield data of statistical interest, have been jointly planned, and the results jointly considered. As the result of this five years' experience, it has become clear to us that it is only by such close coöperation that results of value are likely to be obtained. It is not enough that the statistician should analyse the results obtained by the bacteriologist. He must take a full share in designing the experiments and in following their course. Similarly, the results of biometrical analysis must be carefully considered in the light of the bacteriological findings, and fresh experiments must be planned to elucidate particular questions which such an analysis has left unanswered.

Many of the results which I wish to lay before you are, therefore, the outcome of a joint investigation,[17] for which Dr. Greenwood and I are equally responsible and which we hope to continue. Many of the issues raised are susceptible of experimental investigation without the aid of statistical methods other than those involved in any biological inquiry. If, from the results of such experiments as we are carrying out, it should be possible to formulate any general description of the spread of epidemic disease, it will clearly be necessary to test the validity of such generalisations by statistical analysis of the data of epidemic diseases as they occur in man and animals under natural conditions, and so to develop the inquiry on its purely biometrical side. At the present moment, we believe that the best hope of elucidating the main questions at issue is to combine the experimental and statistical methods, by developing an experimental biometry of epidemic disease, in which the bacteriological and immunological factors shall not be so complex, and so little susceptible to control, as to defy analysis, while the numerical data shall not be so slight as to preclude the application of statistical methods of inquiry.

In 1922 Flexner,[18] Lynch,[19] Amoss,[20 21] and Webster [22 23] published from the Rockefeller Institute a series of papers recording an independent investigation into epidemics among mice; and from that time onward Webster[24-36] and Pritchett[37-39] have carried out a large series of experiments bearing upon the spread of enteric infection among these animals. Recently, Webster[40-44] has also studied the spread of a respiratory infection in rabbits. During the last few years Neufeld,[45-47] Lange,[48-51] and their co-workers in the Robert Koch Institute in Berlin have investigated many different problems in connexion with the factors which determine natural infection among mice.

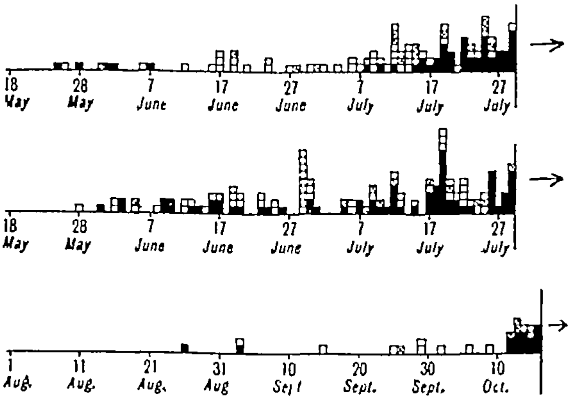
Thus since 1919 there has been accumulated a considerable mass of data bearing on the infection of mice with those bacteria to which they are a natural prey, a problem which is essentially different from the study of the reaction of laboratory animals to bacteria which do not attack them under natural conditions, and which show little tendency to spread from host to host. Many of the experiments recorded, including those which Dr. Greenwood and I have carried out in collaboration, have been specifically designed to investigate the actual spread of epidemic infection among mice, in the hope of obtaining information with regard to the general form of such epidemics under varying conditions. We have hoped in this way to discover certain broad relations, which may later be susceptible of more detailed analysis, by other experiments designed to elucidate isolated problems. Other experiments have been devoted to attempts to solve particular questions with regard to the mechanism of infection with those bacteria which are known to be capable of epidemic spread.

In these lectures I propose briefly to summarise the knowledge which has so far been gained, considering first the data which we have obtained with regard to the general character of such epidemics, and then discussing the factors which may be concerned in producing the observed results.

## THE GENERAL CHARACTERS OF EXPERIMENTAL EPIDEMICS AMONG MICE.

It is unnecessary to refer here to the technical difficulties involved in experiments of this nature, since they have already been considered elsewhere.[4] The only point which need be noted is that all mice which die, and which are not eaten by their companions, are submitted to a full post-mortem examination, including the preparation of cultures from the heart's blood and from the spleen. The unfortunate prevalence of cannibalism among these animals does not allow us to ascertain the cause of every death which occurs, but the majority of the many thousands of mice whose fate has been recorded have been in a condition which has rendered an adequate post-mortem examination possible, and it may safely be asserted that our inability to obtain a complete bacteriological record with regard to every death has not obscured the general course of events. The only two diseases which have so far been studied in any detail are mouse-typhoid and mouse-pasteurellosis, and it is with these alone that we are here concerned.

CHART 1.



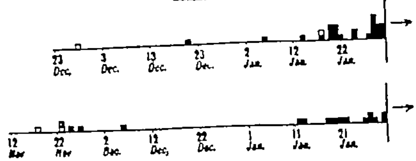
### *The Pre-Epidemic Phase.*

It is logical first to consider those observations which have been made on the initiation of experimental epidemics, but it happens that this part of the problem has, up to the present, received relatively little attention. The great majority of the experiments so far completed have been concerned with the later stages of the epidemic process. The method employed in initiating the spread of infection has differed. In most experiments normal mice have been added to others which have been infected by feeding with the bacterium to be studied; in other cases the infecting mice have been survivors from earlier epidemics. In some experiments a large number of normal mice have been added to their infected fellows in a single batch; in others daily additions have been made, or batches of varying size have been added irregularly.

The records available,[4] inadequate as they are, allow us to form some picture of the different ways in which the specific mortality may be distributed during the pre-epidemic period. The salient points are sufficiently depicted in Charts 1, 2, and 3. In these charts each square corresponds to the death of a single mouse. Where a square is blackened a post-mortem examination established the presence of the particular infection being studied. Where a square is left unshaded such an examination yielded no evidence of this infection, and death was presumably due to some other cause. Where a square is marked with a cross the condition of the dead mouse rendered a post-mortem examination impossible. The arrow to the right of the chart indicates that the epidemic, once established, progressed well beyond the date on which the record ceases.

The three experiments recorded in Chart 1 were concerned with the spread of mouse-typhoid. They were each commenced by feeding a certain number of mice on the causative organism, and thereafter adding normal mice to the cage. In each experiment it is clear that a considerable period may elapse between the occurrence of the first death due to the specific infection and the rise of the first epidemic wave. It will be seen that, during the pre-epidemic phase, there may occur a considerable number of deaths from causes other than the specific infection which is being studied. Such a rise in the mortality from all causes has frequently been noted as a precursor of the main wave of mortality in an experimental epidemic. Whether it has any real significance is a question which has still to be answered.

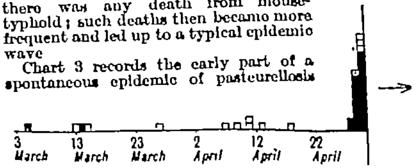
CHART 2.



The two experiments recorded in Chart 2 were initiated by adding to survivors from a previous epidemic of mouse-typhoid four times their number of normal mice, the additions being made in each case as a single batch on the day on which the record begins. In each case it will be noted that a considerable time elapsed before there was any death from mouse-typhoid; such deaths then became more frequent and led up to a typical epidemic wave.

Chart 3 records the early part of a spontaneous epidemic of pasteurellosis which occurred among a batch of some 120 mice, which had been collected in a single cage for another purpose. They had not been intentionally submitted to any risk of infection. It will be noted that a single death from pasteurellosis occurred on March 14th. From then onwards until April 26th a few scattered deaths occurred in the cage, but post-mortem examination of the dead mice revealed no recognisable cause of death. On April 27th two mice died of pasteurellosis, and these deaths were immediately followed by a large wave of mortality from this disease. It may be noted that this spontaneous outbreak of pasteurellosis among our normal stock, which occurred in March, 1921, formed the starting-point of all our experiments on this infection. This disease has never again appeared among our normal animals.

CHART 3.



It is clear from these few experiments that the introduction of infected animals into a normal herd does not suffice immediately to initiate an epidemic of disease, if by an epidemic we mean a wave of morbidity associated with mortality. In these and in all similar experiments our recognition of an epidemic of disease must perforce be based on the observed mortality, since we cannot recognise infection with any certainty in the absence of death.

We must assume that during the pre-epidemic phase some process goes forward which leads to a progressive alteration in the equilibrium between parasite and host, and that it is only when a certain limiting condition has been reached that an epidemic wave of mortality is propagated. In a careful survey of an epidemic of summer diarrhœa Peters [12] observed a sequence of events curiously similar to that recorded in the early stages of these experimental epidemics in mice. He uses the term "epidemic potential" to describe the balance of interacting forces which tends towards the occurrence of an outbreak of disease, and this term appears appropriate and adequate. Employing it, we may assume that the pre-epidemic phase is characterised by a rise in epidemic potential, and that when this has reached some limiting value the next stage of the process, the rising wave of mortality, makes its appearance.

The significance of variations in the form of the pre-epidemic phase, and especially the relation, if any, between the form of this part of the total epidemic process and the form of the subsequent wave of mortality, will be referred to later.

*The Epidemic Phase.*

We may now consider the effect, as judged by the mortality curve, of allowing normal mice to gain access to a cage in which an epidemic is fully established. The first experiment of this kind [3] was concerned with an epidemic of mouse-typhoid, and the results are recorded in Chart 4. On the date when this record commences the epidemic had already been under way for some months, during which the losses by death among the population at risk had been made good by the irregular addition of normal mice. During the greater part of the period covered by the chart normal mice were added at the rate of three a day, irrespective of the number of deaths. During the last 45 days the daily additions were reduced to two animals. On the upper base line are recorded the daily deaths. The lower curve represents the daily cage population. The general character of the progress of mortality is at once obvious. When susceptible mice gain access to the cage at a steady rate the deaths are not uniformly distributed in time, nor do they occur in a purely random fashion. They are grouped in a series of waves, each wave showing minor fluctuations. In Chart 4 there are four such waves, of which the third and fourth are more distinctly separated than are the first and second. These may be followed either on the mortality chart or on the cage-population curve. Successive maxima or minima are separated by periods of between 30 and 10 days. The minor fluctuations in the number of daily deaths are probably of no importance.

It would appear that, when enteric infection is allowed to spread among a herd of mice which is recruited by the addition of susceptibles at a constant rate, some process is set up which waxes and wanes in a more or less regular manner. The equilibrium between parasite and host seems to be a shifting one. As the result of some series of changes, the parasite appears to obtain a temporary mastery; so that a considerable proportion of the mice at risk fall victims to a fatal infection. This is followed by a phase in which there is a decreased tendency for the occurrence of fatal infection, and the death-rate falls. As fresh susceptibles accumulate this succession of events is repeated, and the deaths increase to a fresh maximum, only to fall again when this maximum is passed. The other point to be noted is that there is no evidence that the process has any natural limit in time. This experiment, of which Chart 4 shows a part, was continued over nine months. It was brought to an untimely end by the appearance in the cage of an unrelated infection. Had it been possible to prolong it, there is no reason to suppose that the course of events would have been modified in any essential respect. This point is brought out still more [illegible] in the experiments next to be described.

During the past four years Dr. Greenwood and I have carried out a considerable series of experiments which have enabled us to study this problem in much greater detail.[17] The infection selected for study was mouse-pasteurellosis. A series of epidemics were started, in one case by submitting mice to contact with others which had contracted a spontaneous infection, in others by feeding a number of mice on *Pasteurella muris* and thereafter adding susceptible mice to the cages in which they were housed. In each case the experiment was continued by adding normal mice to the cage at a constant rate, this rate varying in the different experiments. Six such experiments have been performed. The rate of addition and the period of observation in each experiment, up to the autumn of 1924, are shown in Table I. The number given to each experiment corresponds with that recorded in a report which has been published elsewhere.[17]

TABLE I.

| Expt. | No. of mice added daily. | Duration of expt. in months. | Expt. | No. of mice added daily. | Duration of expt. in months. |
|---|---|---|---|---|---|
| 3 | 6 | 8½ | 2*b* | 1 | 17 |
| 2*a* | 3 | 26 | 5 | 1 : 2* | 7½ |
| 4 | 2 | 7½ | 6 | 1 : 3* | 7½ |

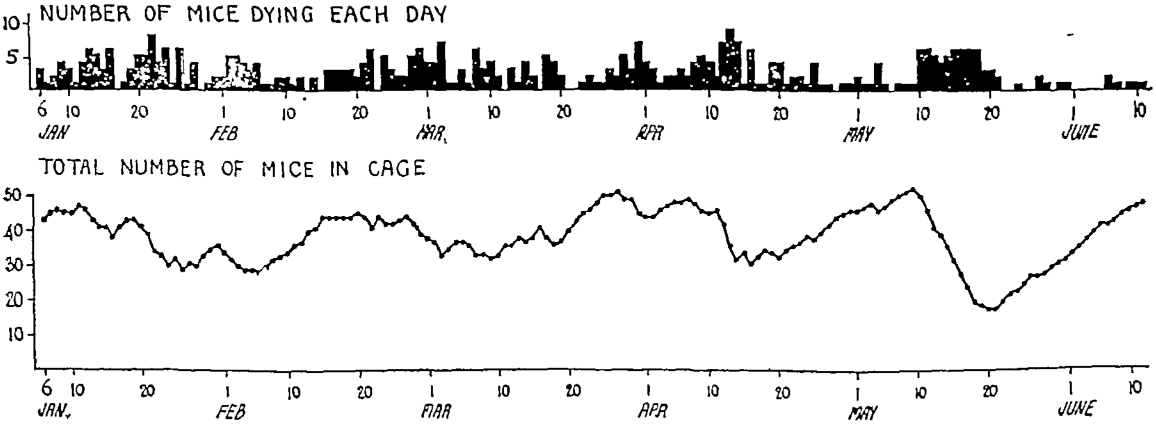
* In Expt. 5 one mouse was added every other day. In Expt. 6 one mouse was added every third day.

In these experiments the progress of mortality has been studied in terms of death-rates, instead of in terms of the actual number of deaths occurring in unit time. In preparing the graphs minor irregularities have to some extent been smoothed out by recording, as the death-rate for any given day, the quotient obtained by dividing the sum of the deaths for the five days of which that day is central by the sum of the cage populations on the same five days. The rate obtained is of the actuarial type—i.e., the probability of dying within the unit of time, the $q_x$ of the life table, instead of the central death-rate, the $m_x$ of most medical publications. There is little difference in the values obtained in this case, but the life-table rate was needed for other purposes and was therefore used throughout. For a full description of the fluctuations in the death-rate reference must be made to our full report. In Chart 5 are recorded the death-rates observed over a five-monthly period in each experiment. The rate recorded is that due to specific mortality. It includes those deaths in which a diagnosis of pasteurellosis was based on a post-mortem examination, followed by the isolation of the causative organism, and those deaths in which cannibalism prevented us from definitely establishing the cause of death. It excludes those deaths in which a post-mortem examination revealed no evidence of pasteurellar infection. We believe that the use of this figure gives us the best approximation to truth at all periods when pasteurellosis is actively spreading in the cage. Almost every dead mouse examined during such periods is found to present the typical lesions of the disease and to yield cultures of *Pasteurella muris* from its tissues. The degree of cannibalism, on the other hand, varies according to the total population of the cage at any moment, according to the particular inclinations of the mice forming that population, and according to the frequency with which the cages are examined and the dead mice removed. In experiments which have to be carried on without interruption over a period of years, it is not possible to examine the cages with equal frequency on each day, so that the degree of cannibalism is subject to random fluctuations. Our records show that the general form of the graphs would not be altered by excluding all deaths, save those in which the diagnosis of pasteurellosis had been definitely established, but the picture presented would certainly depart far more widely from truth than that obtained by the plan which we have followed. One *caveat* must be entered. When few deaths are occurring in a cage, so that the population is steadily increasing, and the appetites of the mice are perhaps whetted by a feeling of general well-being, there is a definitely increased tendency for any mouse which dies to be rapidly devoured by its companions. When, therefore, the death-rate of any herd is very low—as, for example, in the later stages of Experiment 6—the majority of the mice which die over a long period may escape post-mortem examination, and the specific death-rate as above defined may be misleading.

The period of each experiment covered by Chart 5 is selected as giving the best representation of the entire graph for the corresponding epidemic. In the case of Experiments 3, 4, 5, and 6 it covers almost the whole of the actual period of observation up to the end of September, 1924. In Experiments 2*a* and 2*b* it corresponds to periods when fluctuations in the death-rate were well marked. One further point must be noted. The significance of the recorded fluctuations obviously depends on the number of mice on which the rate is based. When the population at risk is small the ratio of the observed death-rate to its probable error may be so low that little significance can be attached to the fluctuations observed. We should pay little attention to small movements in the death-rate, or to the occurrence of irregular or isolated movements when the population at risk is small. The main fluctuations are, however, certainly not due to errors of sampling.

The general character of the progress of mortality in these six epidemics of pasteurellosis is at once obvious from the chart. In Expt. 3, in which six mice were added to the cage each day, the average death-

CHART 4.

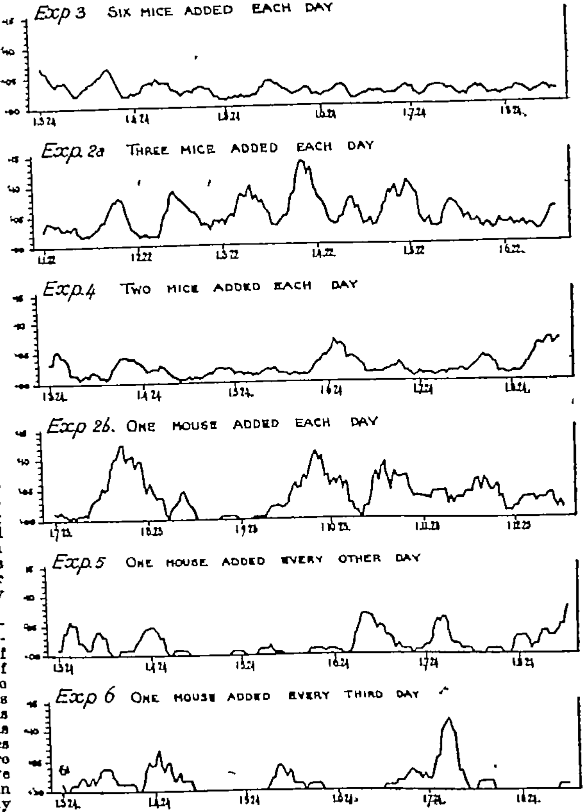


rate is high, but the fluctuations are small. We seem to be approximating to a high but steady death-rate. In Expt. 2*a*, in which three mice were added daily, the average death-rate is also high, higher indeed than in Expt. 3, but the fluctuations are well marked. One wave of mortality follows another without any quiet interval, but they show little tendency to fuse with each other during the period covered by the chart. In Expt. 4, in which two mice were added each day, the average death-rate is lower, but the fluctuations are well marked and distinct. In Expt. 2*b*, in which one mouse was added each day, the average death-rate is lower again, but the waves are very distinct and well separated. In Expt. 5, in which one mouse was added every other day, the average death-rate does not differ appreciably from that observed in Expt. 2*b*, but the waves are very clearly differentiated, and in some instances are separated from one another by quiet intervals during which no death from pasteurellosis occurred. In Expt. 6, in which one mouse was added every third day, the average death-rate is lower again, and the waves of specific mortality are here separated by well-marked quiet intervals, during which the epidemic appeared to have died down completely, only to break out again after an interval. This experiment has now been continued without interruption for over two years and is still in progress. There has occurred during this period a long, quiet interval of over ten months, during which no death from pasteurellosis was recorded; subsequently a further series of waves of specific mortality have been observed.

In Table II. are set out the death-rates recorded in the six experiments, for the whole period of observation up to the end of September, 1924. It will be observed that, with the exceptions of Expt. 2*a* and Expt. 5, there is a steady fall in the death-rate as the rate of addition of susceptibles decreases. In this table there are two additional columns, which give the average daily population in each cage, and the average daily ratio of the number of mice which had lived in the cage for less than 30 days to the number which had been at risk for more than 30 days. It will be noted that there is, except in the case of Expt. 6, a closer correspondence between this ratio and the death-rate than between the death-rate and the average total number of mice at risk. This is particularly striking when we compare Expts. 3 and 2*a*. The ratio of the average numbers at risk is as 155·7 to 63·5, whereas the specific death-rates are as 0·0264 to 0·0366. The herd with an average population two and a half times as large as the other has a lower death-rate. The average under-over 30 ratio, on the other hand, is 2·1 in the herd with the average death-rate of 0·0264, and 2·3 in the herd with the average death-rate of 0·0366. Thus the herd with the higher death-rate, although it has the smaller total number of mice at risk, has a higher average proportion of recent immigrants. (Chart 6.)

It is of some interest to inquire how the course of events will be modified if the addition of normal mice be made irregularly, instead of at a steady rate. In connexion with our investigation of mouse-pasteurellosis we have carried out one such experiment in which we started with 20 infected mice and added 80 normal mice to them on 14/2/24. Another 80 were added on 10/3/24, 50 on 3/5/24, 50 on 11/6/24, and 50 on 1/7/24. Chart 6 shows the sequence of events. The black continuous line records the fluctuations in the specific mortality-rate. The upper broken line shows

CHART 5.



Showing daily death rates in six continued epidemics of mouse pasteurellosis.

TABLE II.

| Expt. | No of mice added per day. | Average daily death rates $q_x$ (specific deaths). | Average daily ratio of numbers under 30 to numbers over 30 days. | Average daily population. |
|---|---|---|---|---|
| 3 | 6 | 0·0264 | 2·1 | 155·7 |
| 2*a* | 3 | 0·0366 | 2·3 | 63·5 |
| 4 | 2 | 0·0244 | 1·6 | 60·6 |
| 2*b* | 1 | 0·0184 | 0·97 | 40·8 |
| 5 | 1 : 2 | 0·0190 | 1·2 | 20·2 |
| 6 | 1 : 3 | 0·0124 | 1·0 | 16·2 |

the variation in the cage population, and indicates the points at which additions were made. It will be seen that the first addition was followed by a large initial wave of mortality, which is two-peaked, and which had almost subsided when the second addition was made on 19/3/24. This addition had very little effect on the rate of mortality, which remained at a low level and had fallen to zero when the third addition was made on 3/5/24. This addition was followed by a slow and slight rise in the death-rate, which shows three fluctuations before the next addition was made on 11/6/24. This addition was made shortly after the small wave of mortality which began on 1/6/24 had passed its crest. It was followed by a very definite rise in the death-rate, leading to a wave which had passed its crest and fallen almost to zero when the final addition of normal mice was made on 1/7/24. This addition was almost without effect on the death-rate.

CHART 6.

Pasteurellosis

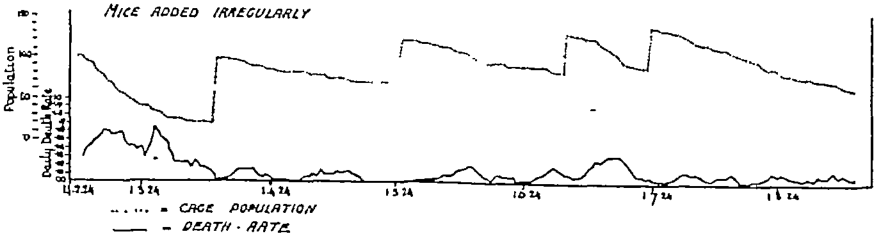
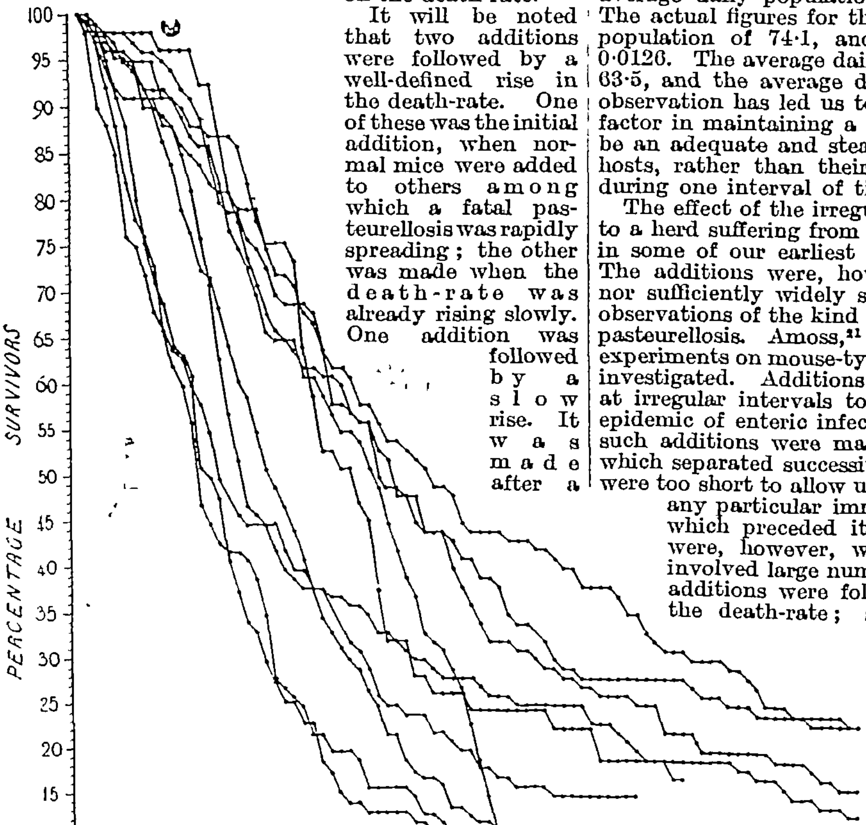


CHART 7.



Showing daily percentage of survivors in ten epidemics of mouse typhoid.

It will be noted that two additions were followed by a well-defined rise in the death-rate. One of these was the initial addition, when normal mice were added to others among which a fatal pasteurellosis was rapidly spreading; the other was made when the death-rate was already rising slowly. One addition was followed by a slow rise. It was made after a long interval had elapsed since the first large wave, during which a low death-rate had prevailed. Two additions were followed by no significant rise in the death-rate. Each was made immediately after the subsidence of a considerable wave of mortality. It would be unwise to stress in any way this relation between the phase of the epidemic at which an addition is made and its effect on the subsequent death-rate. Far more thorough investigation will be needed before we can arrive at any just conclusion on this point. We may, however, note that the immigration into an infected herd of relatively large numbers of normal animals, in a single batch, may sometimes be followed by a considerable rise in mortality, and at others may have little apparent effect. It may also be noted, and this is a point of some interest, that the average specific death-rate among this herd was the lowest but one observed in this series of experiments, while the average daily population was the highest but one. The actual figures for this epidemic gave an average population of 74·1, and an average death-rate of 0·0126. The average daily population in Expt. 2*a* was 63·5, and the average death-rate was 0·0366. This observation has led us to suggest that the important factor in maintaining a high epidemic potential may be an adequate and steady circulation of susceptible hosts, rather than their presence in large numbers during one interval of time.

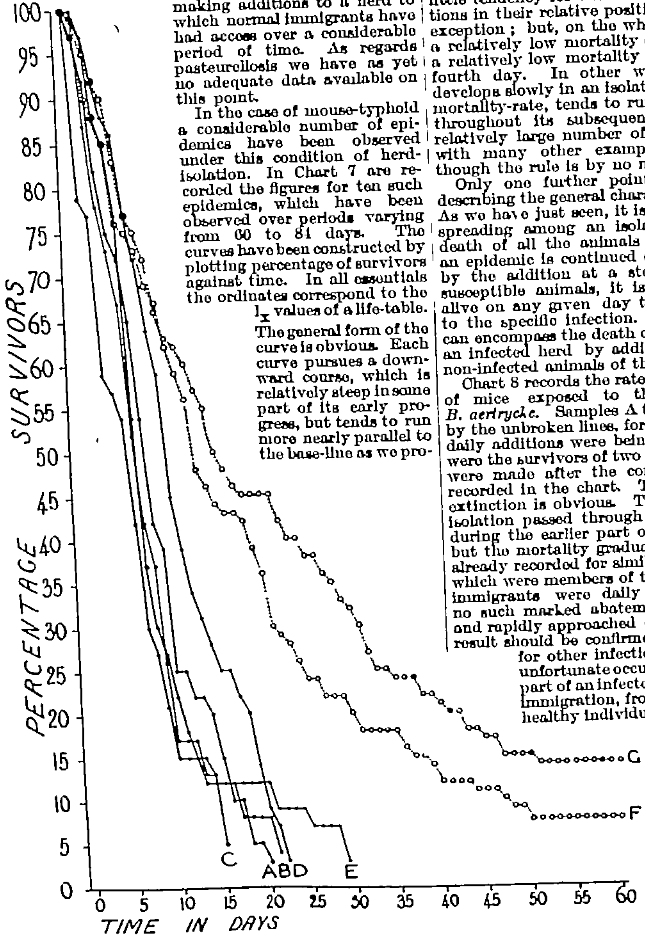
The effect of the irregular addition of healthy mice to a herd suffering from enteric infection was studied in some of our earliest experiments on this disease. The additions were, however, neither large enough nor sufficiently widely spaced, to allow us to make observations of the kind recorded above in the case of pasteurellosis. Amoss,[11] in 1922, recorded a series of experiments on mouse-typhoid in which this point was investigated. Additions of normal mice were made at irregular intervals to a community in which an epidemic of enteric infection was spreading. Twelve such additions were made, but six of the intervals which separated successive additions from each other were too short to allow us to differentiate the effect of any particular immigration from that of those which preceded it. The remaining additions were, however, well separated in time and involved large numbers of mice. Some of these additions were followed by a marked rise in the death-rate; some were almost without effect. The results recorded by Amoss for mouse-typhoid are thus very similar to those which we have observed in pasteurellosis. There is, however, a difference in technique, which may have introduced a disturbing factor. In our experiments all mice at risk were housed in a single cage, thus ensuring as uniform an admixture as possible of the individuals within the experimental herd. In Amoss's experiments the mice were housed in a large number of small cages, and infection was spread from cage to cage by the activities of the attendant during the routine process of cleaning and feeding. Opportunities for random variations may therefore have intervened in these epidemics which were absent from our own experiments; but the general course of events, over the long period covered by Amoss's investigation, does not suggest that the fluctuations in mortality were due in any large part to variations in the effectiveness of the carriage of infection from cage to cage.

There remains for consideration the sequence of events, observed when an epidemic is allowed to spread among a herd of mice without any additions, beyond the initial mixture of infected and susceptible animals, or when we cease making additions to a herd to which normal immigrants have had access over a considerable period of time. As regards pasteurellosis we have as yet no adequate data available on this point.

In the case of mouse-typhoid a considerable number of epidemics have been observed under this condition of herd-isolation. In Chart 7 are recorded the figures for ten such epidemics, which have been observed over periods varying from 60 to 84 days. The curves have been constructed by plotting percentage of survivors against time. In all essentials the ordinates correspond to the $l_x$ values of a life-table.

The general form of the curve is obvious. Each curve pursues a downward course, which is relatively steep in some part of its early progress, but tends to run more nearly parallel to the base-line as we proceed further to the right. In all cases deaths have become relatively infrequent by the sixtieth day, and have almost ceased to occur at the end of three months. In all cases a certain proportion of mice are left alive on the day when the experiment terminates, the percentage of survivors varying, in the experiments here recorded, between 6 and 33 per cent. There is no reason to suppose that, had these experiments been further continued, any appreciable increase in the total specific mortality would have been noted.

CHART 8.



It would appear that an epidemic of mouse-typhoid which is allowed to run its course among a herd of mice kept in isolation will result in a total mortality varying between 65 and 95 per cent., but will seldom or never lead to the complete extermination of the herd.

There is another point in connexion with this series of curves to which we would draw attention. It will be noted that, after about the thirtieth day there is little tendency for the curves to show marked alterations in their relative position. There is one striking exception; but, on the whole, the herd which shows a relatively low mortality on the thirtieth day shows a relatively low mortality on the sixtieth or eighty-fourth day. In other words, an epidemic which develops slowly in an isolated herd, as judged by the mortality-rate, tends to run a relatively mild course throughout its subsequent stages, and to leave a relatively large number of survivors. We have met with many other examples of this phenomenon, though the rule is by no means an invariable one.

Only one further point need be referred to in describing the general characters of these experiments. As we have just seen, it is unusual for any epidemic, spreading among an isolated herd, to lead to the death of all the animals at risk. When, however, an epidemic is continued over a long period of time, by the addition at a steady or irregular rate of susceptible animals, it is found that all the mice alive on any given day tend ultimately to succumb to the specific infection. It would appear that we can encompass the death of certain individuals among an infected herd by adding to the herd normal and non-infected animals of the same species.

Chart 8 records the rate of extinction of six samples of mice exposed to the risk of infection with *B. aertrycke*. Samples A to E, whose fate is recorded by the unbroken lines, formed part of a herd to which daily additions were being made. Samples F and G were the survivors of two herds, to which no additions were made after the commencement of the period recorded in the chart. The difference in the rate of extinction is obvious. The mice which were kept in isolation passed through a period of high mortality during the earlier part of the period of observation, but the mortality gradually subsided in the manner already recorded for similar isolated herds. The mice which were members of the herd to which susceptible immigrants were daily gaining admission enjoyed no such marked abatement of their risk of death, and rapidly approached complete extinction. If this result should be confirmed in future experiments and for other infections, it would appear to be an unfortunate occurrence for individuals forming part of an infected herd to be subjected to the immigration, from without that herd, of other healthy individuals of their own species.

## CONCLUSIONS.

The following conclusions seem to be justified by the evidence which has been summarised above.

In experiments in which the environmental conditions are kept relatively constant, in which meteorological variations can apparently play little part, and in which the food-supply is adequate in amount and constant in its general character, the admixture of healthy and infected mice is followed by the epidemic spread of those bacterial diseases which have been studied.

The initial mixture of infected with susceptible hosts is followed by a pre-epidemic phase of variable duration, in which infection is certainly spreading among the population at risk and may cause the death of some individuals within the herd, but during which the epidemic potential has not attained a level which will result in a well-marked wave of mortality.

When the pre-epidemic stage has been passed and a definite epidemic prevalence of the disease has been established, the further course of events is largely determined by the rate of immigration of susceptible hosts. If no such immigration occur the epidemic gradually dies down, leaving a varying number of survivors.

If susceptible animals be added regularly to the herd the form of the fluctuations in the resulting death-rate and its average value are mainly determined by the rate of immigration. With a moderate immigration rate the deaths tend to occur in a series of well-marked waves without any quiet interval. If the rate of immigration be diminished the waves of mortality tend to be more widely separated from each other, the intervening quiet intervals sometimes lasting over several months. If the rate of immigration be increased successive waves of mortality tend to become fused together. The average death-rate may not be so high as that observed at the peak of a wave of mortality during an epidemic in which the immigration-rate is much lower, but the fusion of the waves results in a high and relatively steady death-rate.

If irregular additions be made, the effect of such additions on the subsequent death-rate may vary widely. It would seem that the effect of any one addition is largely determined by the equilibrium between parasites and hosts which exists at the time when that addition is made. The irregular addition of large batches of susceptible animals appears to result in a lower average death-rate than that which follows the frequent and regular addition of smaller batches, even though the average population at risk be larger in the former case than in the later. There is a suggestion that a steady circulation of susceptibles is a more important factor in favouring the epidemic spread of disease than is the total number of mice exposed to risk.

There is some evidence to suggest that an epidemic, which spreads slowly among an isolated herd during its earlier stages, will lead to a smaller total mortality than will another epidemic of the same disease, which spreads rapidly within a short time of its initiation. There is also evidence to suggest that a herd among which an epidemic is spreading will approach extinction more rapidly if it be subjected to the immigration of susceptibles of the same species than if it be kept in isolation.

A bacterial infection which tends to spread naturally from mouse to mouse under the conditions of these experiments may be maintained in an experimental herd for an indefinite period of time, on the sole condition that the herd be replenished by the immigration of susceptible animals, even though the rate of immigration be very slow. In general it would appear that the movement of susceptible but uninfected individuals is one of the main factors in determining the course and duration of the epidemic spread of bacterial disease.

### BIBLIOGRAPHY.

*(Including references which will appear in Lectures II. and III.)*

1. Topley, W. W. C.: The Lancet, 1919, ii., 1.
2. Same author: Jour. of Hyg., 1921, xix., 350.
3. Same author: Ibid., 1921, xx., 103.
4. Same author: Ibid., 1922, xxi., 10.
5. Same author: Ibid., 1922, xxi., 20.
6. Same author: Ibid., 1923, xxi., 226.
7. Topley and Wilson, G. S.: Ibid., 1923, xxi., 237.
8. Same authors: Ibid., 1923, xxi., 243.
9. Topley and Ayrton, J.: Ibid., 1924, xxii., 322.
10. Same authors: Ibid., 1924, xxii., 234.
11. Same authors: Ibid., 1924, xxii., 305.
12. Same authors: Ibid., 1924, xxiii., 198.
13. Topley, Ayrton, and Lewis, E. R.: Ibid., 1924, xxiii., 223.
14. Same authors: Ibid., 1925, xxiii., 421.
15. Same authors: Ibid., 1925, xxiv., 17.
16. Topley and Wilson, J.: Ibid., 1925, xxiv., 295.
17. Greenwood, M., and Topley: Ibid., 1925, xxiv. 45.
18. Flexner, S.: Jour. Exp. Med., 1922, xxxvi., 9.
19. Lynch, C.: Ibid., 1922, 15.
20. Amoss, H.: Ibid., 1922, 25.
21. Same author: Ibid., 1922, 45.

*(Continued at foot of next column.)*

*(Bibliography: Continued from preceding column.)*

22. Webster, L. T.: Ibid., 1922, 71.
23. Same author: Ibid., 1922, 97.
24. Same author: Ibid., 1923, xxxvii., 21.
25. Same author: Ibid., 1923, 33.
26. Same author: Ibid., 1923., 231.
27. Same author: Ibid., 1923, 269.
28. Same author: Ibid., 1923, 781.
29. Same author: Ibid., 1923, xxxviii., 33.
30. Same author: Ibid., 1923, 45.
31. Same author: Ibid., 1924, xxxix., 129.
32. Same author; Amer. Jour. Hyg., 1924, iv., 134.
33. Same author: Jour. Exp. Med., 1924, xxxix., 879.
34. Webster and Pritchett, I. W.: Ibid., 1924, xl., 397.
35. Same authors: Amer. Jour. Hyg., 1925, v., 335.
36. Same authors: Jour. Exp. Med., 1925, xlii., 1.
37. Pritchett: Ibid., 1924, xxxix., 265.
38. Same author: Ibid., 1925, xli., 195.
39. Same author: Ibid., 1925, xli., 209.
40. Webster: Ibid., 1924, xxxix., 837.
41. Same author: Ibid., 1924, xxxix., 843.
42. Same author: Ibid., 1924, xxxix., 857.
43. Same author: Ibid., 1924, xl., 109.
44. Same author: Ibid., 1924, xl., 117.
45. Neufeld, F.: Zeitsch. f. Hyg., 1924, ci., 466.
46. Same author: Klin. Woch., 1924, iii., 1345.
47. Same author: Zeitsch. f. Hyg., 1924, ciii., 471.
48. Lange, B.: Zeitsch. f. Hyg., 1921, xciv., 135.
49. Same author: Ibid., 1924, cii., 224.
50. Lange and Yoshioka, M.: Ibid., 1924, ci., 451.
51. Lange and Keschischian, K. H.: Ibid., 1924, ciii., 569.
52. Peters, O. H.: Epidemic Diarrhœa, 1911, Camb. Univ. Press.
53. Dudley, S. F.: The Schick Test, Diphtheria and Scarlet Fever, Med. Res. Counc., Spec. Rep. 75, 1923.
54. Morgenroth, J., Biberstein, H., and Schnitzer, R.: Deutsch. Med. Woch., 1920, xlvi., 337.
55. Hirszfeld: Die Naturwissenschafen, 1926, xiv., 17.
56. Power, W. H.: Twelfth Annual Rep. L. G. B., 1883.
57. Glover, J. A.: Jour. of Hyg., 1918, xvii., 367.
58. Okell, C. C., Eagleton, A. J., O'Brien, R. A.: The Lancet, 1924, i., 800.

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# Lettsomian Lecture

ON THE

## PRINCIPLES OF TREATMENT IN RELATION TO DISEASES OF THE NERVOUS SYSTEM.

*Being the Second Lettsomian Lecture[*] in 1926, delivered before the Medical Society of London on Feb. 24th,*

By E. FARQUHAR BUZZARD, M.D. Oxf.,
F.R.C.P. Lond.,
PHYSICIAN TO ST. THOMAS'S HOSPITAL.

I AM not infrequently told that neurological practice must be very disheartening, as there is little or nothing to be done for organic diseases of the nervous system. This indictment holds equally true for all other branches of medical practice, if we lay no claim to be healers or if we appraise impartially and ungrudgingly the silent influence continually exerted by Nature against the forces of disease and refrain from over-calling any share we may have in the success of our combined efforts. Not the least difficult of our responsibilities is that of weighing the results of treatment, of eliminating from our minds the post hoc, propter hoc process of reasoning and of reviewing all obvious and isolated conclusions in the light of accumulated experience.

From a physiological point of view neurology is distinguished from other specialties in that the organs with which it is concerned are endowed with a number of dominating functions in the absence or failure of which those of all other organs, however healthily preserved, are of little value. Speaking anatomically, the brain and spinal cord, at any rate in the majority of instances, differ from most other organs in possessing little or no superfluous material. These are two considerations which impose, or should impose, on the surgeon a degree of restraint he is unaccustomed to feel when invading other less particular territories of the human frame.

It is, perhaps, unseemly for a physician to discuss in public the terms upon which his surgical brother should be invited to his assistance, but, in order to forestall reproach, I will preface the remarks I propose to make on the indications for surgical intervention in cases of intracranial tumour by stating at once that my respect for brain surgery has been steadily growing for many years. We should be thankful that the risks and responsibilities it involves and the frequent disappointments with which it must necessarily be associated have not deterred its exponents nor checked its scientific progress. It is, perhaps, impossible for anyone to rate the value of surgical intervention in relation to tumours of the brain who has not seen and followed a large number of cases. There must be many medical men whose small personal experience in this direction can only have led to pessimism, just as there may be others with equally meagre, but more fortunate, experience who have become unduly optimistic. Without being in a position to offer you statistical proof for the opinion, I hold the view that the results obtained from surgical intervention are far more satisfactory than they were 20 years ago, and that credit for this can be allotted not solely to advances in surgical skill, judgment, and technique, but also to the fact that the diagnosis is, on the whole, made earlier and more accurately than it used to be.

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[*] The first lecture appeared in The Lancet, Feb. 20th, p. 377.

The subject under discussion is one in which principles of treatment are so intimately involved in the question of diagnosis that I must ask to be excused if I appear to wander a little way from the title of these lectures.

### SURGICAL INTERVENTION IN TUMOURS OF THE BRAIN.

The problem most commonly presented to us is of the following nature. The conclusion has been arrived at that a patient's symptoms are due to the presence of a tumour involving a part of one cerebral hemisphere or one lobe of the cerebellum. Although confident about its localisation we are unable to form any exact opinion as to its nature. We have applied such tests as seem necessary to put a gumma out of court, and we find no evidence to suggest that the cause of trouble is a secondary neoplasm. Examination of the blood and cerebro-spinal fluid as well as the history of the patient do not favour, although they cannot absolutely negative, the possibility of an abscess or a tuberculoma, and radiology has failed to throw any light on the question. The nature of the lesion can now only be ascertained by inspection through an opening in the skull, and upon what is found at the operation depends the answer to the question whether permanent or only temporary relief of symptoms can be afforded. If there is a menace to vision in the shape of papilloedema or if headache and vomiting have been prominent symptoms, almost certain relief can be promised, but beyond that it is wise to refrain from prophecy.

At this stage I would lay emphasis on the fact that intracranial exploration is a field of surgery which is rich in surprises. When everything has seemed to point to the presence of an infiltrating glioma with its attendant bad prognosis, we may find an endothelioma or chronic abscess capable of complete removal, or vice versa. But there is another point to which I would draw special attention and which has not, perhaps, attracted the notice it deserves in this connexion. The most promising group of cases of intracranial tumour, from the point of view of permanent relief afforded by operation, is that in which headache, vomiting, and optic neuritis are symptoms conspicuous by their absence. In spite of the fact that we have all been taught to regard these as the cardinal symptoms of intracranial tumour, we must look to cases without them for providing perhaps the majority of examples of successful treatment. This is not merely a question of early diagnosis, although it means much to the surgeon that his services should be called upon before intracranial tension is much raised. It is due to the fact that slow growing endotheliomata may reach a very large size without provoking the cardinal symptoms and that they can often be entirely removed with little fear of any recurrence. Two instances illustrating this axiom and presenting slight but important differences in their clinical histories may be worth a brief description.

### *Clinical Cases.*

CASE 1.—On June 8th, 1918, a young man, about 25 years of age and apparently in perfect health, was out riding when he felt his eyes being forced involuntarily to his left side. This passed off in a few seconds, but later in the day the same thing recurred, followed by forcible turning of the head to the left and some twitching of the left side of the face and loss of consciousness. Fits, resembling either the first or second of those I have described, were repeated at intervals up to the time when he came under my observation early in December of that year, but in between the attacks he was well and the only headache he experienced was after a severe fit.

I had many opportunities of examining the patient in the course of the next six weeks, and during the whole of that time there were no physical signs, in particular no optic neuritis, no headache, and no vomiting. At the end of the first week in January, 1919, I noticed slight weakness of the left face and a diminished abdominal reflex on the same side. On Jan. 12th Mr. P. W. G. Sargent operated at my request, turned down a large osteo-plastic flap in the right frontal region, and removed an encapsuled hard tumour about the size of a hen's egg, evidently growing from the under surface of the dura mater and embedded in, although easily detached from, the frontal lobe.

The patient recovered rapidly and perfectly from the operation, was prescribed some bromide to take regularly, and had three fits in the course of the next 12 months. These attacks continued to recur at long intervals, but when I heard from the patient at the end of December, 1925, he had been free from fits since August, 1924, and had been leading an active and busy life for several years.

CASE 2.—On Oct. 1st, 1924, I was consulted by a man, 52 years of age, who had always led a very active life and who, in 1902, had sustained two somewhat severe falls from horseback, resulting in slight concussion but no serious after-effects. In 1923 he first noticed a tendency to bump into objects on his left side and took medical advice with the result that his Wassermann reaction was tested and proved negative. In April, 1924, he noticed some failure of his left leg when salmon fishing, and that his left hand was becoming clumsy. He did not complain of headache, although he admitted that a severe physical strain would sometimes provoke a slight pain in his head. He was convinced that an exostosis in connexion with his seventh cervical vertebra, which had been revealed by an X ray photograph of his spine, was the source of his disabilities.

On examination he proved to have complete left hemianopia, a slight loss of postural sensibility and tactile discrimination in his left hand, a diminished left abdominal reflex, and an extensor response on stimulating the sole of his left foot. There was no optic neuritis but a slight though definite slowness of cerebration and perhaps some mental confusion.

A very good X ray photograph, taken by Dr. Shires, revealed a slight thickening of the bone in the right parieto-occipital region. On Oct. 22nd, 1924, Mr. Sargent removed an endothelioma as large as a man's fist from the surface of the brain in the right parieto-occipital region, with the result that three months later he appeared to be perfectly well, able to lead a fairly active life, and to have regained practically the whole of his left visual field. When I saw him a year after his operation he was able to enjoy a stiff day's partridge shooting and to do his share of ornithological execution.

A number of interesting questions are raised by a consideration of these two stories. Among those which cannot be discussed now are (*a*) why did the first patient suffer from fits and why did the second present complete freedom from that symptom, and (*b*) what is the relationship of injury to the development of neoplasm? There was no history of head injury in the first case, and a history of two fairly severe blows on the head in the second case occurring 20 years before any symptoms of an intracranial tumour were manifested. On the other hand, the records of these two patients do illustrate the importance of attaching no weight to the absence of headache, vomiting, and optic neuritis when surgical intervention is being considered in relation to intracranial tumours. Further, I would urge that the administration of bromide should always be prescribed after such operations, and that it should be continued for a few months even when there is no history of fits either before or after the removal of the tumour, and for many years in those cases in which fits have been a prominent feature. Finally, I would draw attention to the complete recovery of the left visual field in the second patient after treatment in spite of the fact that it must have been greatly encroached upon for a period of at least two years.

May I, in the next place, drive home the principle that intracranial surgery is full of surprises and, by way of illustration, cite a case in which I certainly neglected it.

CASE 3.—About a year ago a boy, 11 years of age, was brought to me with a history of having suffered for three months from early morning headaches, accompanied by occasional vomiting, and from persistent diplopia. On examination he was found to hold his head inclined to his left shoulder, to have papilloedema in both eyes with rather more swelling in the left, coarse nystagmus more marked on looking to the right, weakness of the right superior oblique muscle, perhaps a little ataxy affecting the left leg more than the right, and a diminished left abdominal reflex. These symptoms and physical signs pointed without doubt to raised intracranial pressure due to the presence of some foreign substance in the posterior fossa. There was a strong family history of tubercle on the mother's side and a brother of the patient had recently died from tuberculous meningitis. Notwithstanding the absence of pyrexia and of any abnormal constituent in the cerebro-spinal fluid, I came to the conclusion that the law of probability favoured the diagnosis of a cerebellar tuberculoma, and I advised prolonged and complete rest with as much good food and fresh air as were obtainable. For this purpose he was admitted under my care into St. Thomas's Hospital. Headache and vomiting became gradually less severe and less frequent, but the optic neuritis and other ocular signs persisted. After watching him carefully for nine months and finding no improvement in the condition of the optic discs, I decided to ask Mr. Sargent to decompress the posterior fossa, still believing that a tuberculoma, perhaps inactive and encapsuled, would be found. As it turned out there was discovered a simple but large meningeal cyst, the evacuation of which has completely relieved the patient of his symptoms and has led to the disappearance of his papilloedema. The operation might have been carried out nine months earlier with equally good results if the principle of looking at the brain before finally deciding on its nature had been followed.

In this particular instance there seemed to be some justification for the course I adopted, and I might still be inclined to do the same under similar circumstances. Possibly I may, in future, exercise my patience for a somewhat shorter period of time before seeking the help of my surgical colleague. At the same time, having the patient under almost daily observation, I was able to watch the optic discs and to ask for the relief of pressure before any atrophic changes supervened on the neuritis, thus eliminating any risk of the visual acuity becoming permanently damaged.

From what has been said already, you will gather that I do not regard the localisation of intracranial lesions as a difficult task compared to that of determining their nature, and that one of the most important indications for surgical intervention is in many cases the necessity for seeing and feeling the tumour. If, on the other hand, the tumour is so placed that its removal is out of the question, there is no need to ascertain its nature by exploration, although a decompression may be indicated for the purpose of relieving suffering. The latter operation should be avoided if relief can be afforded by other measures, as the prolongation of life associated with a cerebral hernia of gradually increasing dimensions is an experience which is undesirable in the interest of the patient and of his family. It is hardly necessary to add that once an operation has been decided on, delay in carrying it out may be attended with grave risk when headache and vomiting are severe or when the patient's pulse is becoming slow or his respiration disturbed in rate or rhythm. Sudden death a few hours before a contemplated operation is an occurrence which is not as uncommon as it is avoidable.

### THE TREATMENT OF EPILEPSY.

We must sadly admit that the last quarter of a century, although not devoid of praiseworthy efforts, has seen little light thrown on the pathogenesis of epilepsy, and has supplied us with no substantial reasons for altering what may be termed its traditional treatment. Were it not, indeed, that certain principles of treatment, in my opinion of considerable value, are frequently overlooked or neglected, I should have been tempted to omit their consideration from these lectures.

Before embarking on a task already sufficiently invested with gloom by its note of introduction, let me allay some of your fears by expressing at once my intention of confining my remarks to the principles governing the treatment of epilepsy in its earliest stages and avoiding those which are concerned with the care of patients suffering from the disorder in its established form.

In order to lay down principles governing the treatment of any disorder it is desirable to accept, even if only provisionally, some theory, however vague, which appears to offer an explanation of its origin and qualities. In regard to epilepsy, which I describe purposely as a disorder rather than a disease, I propose to accept the view that it is a manifestation of instability on the part of some important nervous mechanism closely allied to, if not identical with, the vasomotor system. In other words, I regard epileptic attacks, slight or severe, as only the occasional outward and visible signs of some permanent underlying nervous state which is inherent in a certain proportion of the population. I would go, perhaps, further and submit that we are all epileptic in the sense that under entirely favourable circumstances and to sufficient provocation even the most stable of us might respond in an epileptic manner. If we exclude individuals whose personalities have been altered in the course of years as the result of constantly recurring fits and of all their psychological consequences, and also the mental defectives among whom epileptic phenomena are common, and pay attention only to children who have had but a few attacks, it is impossible to say that the majority of them are very different from their companions in the intervals between their attacks. At any rate, they are rarely recognised as being in any way exceptional, either by parents or medical attendants, until the occurrence of one or more fits gives them their distinctive mark. While it is true that psychological investigations have seemed to show that the minds of most epileptics approximate to a certain type, workers in this field of research do not suggest that the type of mind is confined to epileptics, nor do they attempt to explain why only a proportion of persons possessing it are subject to fits. Again, we are aware that out of a hundred persons who suffer from head injuries of moderate severity, a small number will subsequently develop epilepsy, but we should find it very difficult to identify that small number beforehand, or to point out the characteristics which distinguish them from their fellows afterwards.

There are many other similar considerations bearing on the nature of epilepsy, all of them deserving careful study, but as I am concerned for the moment with those which may throw light on principles of treatment, I will refer briefly only to two or three. It is a matter of common knowledge that the onset of several acute specific fevers is not infrequently associated with epileptic attacks in children, very rarely in adults, and that such children may never manifest any epileptic tendencies at any other times. Again, the occurrence of attacks only during dentition or during a short period of time about the age of puberty is within the personal knowledge of most of us. Finally, we have to remember a small group of individuals who, apparently normal in every other respect and often leading very active and useful lives, are subject to occasional epileptic attacks at long intervals and who may be described as none the worse for them.

If, with such information at the back of our minds, we accept the view that epileptic attacks are only manifestations of a permanent degree of instability on the part of some nervous mechanism, if we agree that this instability is usually exaggerated by repeated attacks, and if we do not deny that in a small proportion of cases treatment meets with success, it is clear that early diagnosis of the disorder and the frank recognition that a cessation in the occurrence of attacks does not in any way constitute a cure or justify the neglect of whatever successful measures may be in force, are two of our most important therapeutic necessities. This belief has, in my case, received much encouragement from experience, in that most of the cases met with in private or hospital practice which have responded to treatment have been diagnosed at a very early stage and have persevered with treatment for long periods of time.

### "*Embryonic*" *Signs as an Aid to Early Diagnosis.*

Early diagnosis of epileptic instability before any of its manifestations have appeared on the scene is an deal which in the present state of our knowledge seems almost out of reach, but the next best thing would be a more general recognition of its most trivial "embryonic" signs. Common among these are so-called regional jerks which precede other epileptic phenomena by many months and sometimes by years. They may be best described as identical with the involuntary sudden jerk of a limb which most people have experienced at some time or another when in the twilight of sleep. They occur frequently at that time and still more frequently in the morning either before the patient leaves his bed or while he is dressing. So violent may they be that articles in his hand may be flung to the other end of the room or, if a leg is involved, a fall to the ground may result.

Another early manifestation is a form of aura without its subsequent developments. This is often subjective, in that only the patient can describe it and he sometimes fails. There is some momentary interruption in the continuity of his mental processes associated perhaps with some local sensory disturbance, a smell, a vision, a feeling of tingling, or just what the patient may call a "wave of unreality." Such auræ are not accompanied by any lapse of consciousness, a feature of its next development, the petit mal attack. It is to be noted that these trivial epileptic phenomena resemble the more mature forms in their partiality for occurring in the borderland between sleep and full awakedness, a time when we may assume that the circulation in the higher nervous centres is in an unstable state of transition.

But these phenomena are not trivial if their true significance is appreciated and they should all be assessed as manifestations of the epileptic state, as characteristic as a major attack. A history of such embryonic signs preceding the first convulsion can often be obtained from patients who come for advice and it is rarely found that they have been regarded seriously. If treatment were more commonly initiated with their appearance, I am convinced that we should meet with more success.

But there are other stories relating to the development of epilepsy to which, on account of their frequency, reference must be made. A child, apparently healthy and about 12 or 13 years of age, has a major epileptic attack. Ingenuity is exercised in finding a satisfactory explanation and the word "epilepsy" is not even whispered. The excitement of an evening spent at the "pictures" or an unusually hearty meal suffice as plausible excuses for the patient's lapse from grace. Perhaps a bottle of a bromide mixture is prescribed and duly drunk, and then life is resumed as if nothing had happened. Six months later the second fit occurs and perhaps the blame for it is again satisfactorily apportioned. Three months elapse before the third fit comes along and treatment is commenced, nine months too late. A variation of this tale is supplied by the patient who is treated with bromide for six months after the first attack; the medicine is then cut off and the second fit occurs within the next few months.

I should like to lay down the principle that any manifestation of epilepsy in childhood should insure treatment being persevered with until adult life has been reached, however successful it may have been in preventing any repetition of the first sign. Even then the cessation of treatment should be carried out very gradually and with caution. A dog is allowed one bite before appropriate treatment is carried out; a child should not be allowed to exhibit any manifestation of epilepsy without the immediate initiation of proper therapeutic measures.

### *Individual Treatment.*

We have next to consider the treatment which must take into account the inherent and, perhaps, permanent instability as well as its various forms of expression. To deal with the latter first, each case must be studied as a separate problem. What have appeared to be the exciting causes, emotional disturbances, fatigue, bad atmospheres, indiscretions in diet, and so on? Measures for their avoidance must, if possible, be taken. But in laying down any restrictions with this object in view we should be strongly influenced by a desire to make the child's life as little different from that of his fellows as possible, and so to prevent the inevitable psychological effects which accompany the consciousness of such an unenviable distinction. In this connexion I would earnestly deprecate the not uncommon practice of interfering with a child's education on the plea that his brain must be relieved from all strain. While agreeing that his or her work should be carefully regulated and the conditions, physical and psychological, under which it is done critically reviewed, I have never been able to satisfy myself that the occupation provided by lessons is anything but beneficial. The same remark applies with equal force to games, so long as they are wisely supervised. It is much more likely that fault can be found with the psychological atmosphere of a school than with its work or play.

In the next place, brief reference is due to those physical sources of irritation which loom so large in the eyes of the public, and sometimes of the profession, as agencies of disease. Septic tonsils, adenoids, errors of refraction, worms, and vulvitis no doubt may play a part as exciting causes, but their correction does not relieve the doctor of his responsibility for dealing with the underlying instability without which no manifestation of epilepsy would have made its appearance.

Finally, we must turn to the medicinal measures which are at our disposal and which, in my opinion, are the only ones which exert an influence on the essential disorder of nervous function. Here we are faced by very real difficulties based on the profound prejudice with which the use of the bromide salts is regarded, chiefly, but not solely, by the lay mind. This prejudice might appear extraordinary to many of us, did we not recognise that it has grown from the misuse rather than from the use of our most valuable remedy. That it has been tried in large numbers of cases without success and that it has appeared to do harm in many others are sufficient grounds for its discredit. Nevertheless, allowing for individual idiosyncrasies which must necessarily influence our use of any drug, the bromides have been convicted, through no fault of their own, of many crimes of which they are not really guilty. Given irregularly, or for too short a time, they are blamed for lack of success. Given in too large or too frequent doses they are responsible for toxic states which are inevitable. Given in appropriate doses without success, a result which must often ensue, especially when their use has been too long delayed, the depression really attendant on their failure to cure is laid at their door.

### *The Use of Bromides.*

It is when we review our successes that we find the evidence requisite for a belief in the beneficence of bromides and in the factors essential for their favourable action. Let me summarise briefly the principles which should govern their use. (1) They should be prescribed as soon as any manifestation of epilepsy makes its appearance, irrespective of any excuses which may be manufactured for the latter.

(2) The dose should be the minimum required for its purpose, a matter requiring general as well as particular experience. (3) The number of doses in 24 hours should be as small as possible, and should be timed in accordance with any special features of the case under consideration. In nocturnal epilepsy, for instance, a dose at bedtime is often all that is required; in other instances a dose half an hour before leaving bed in the morning is desirable. (4) The administration must be regular and continued for an indefinite time according to age and other circumstances, certainly not according to any rule of thumb such as one, two, or three years. (5) A small quantity of arsenic, 2 or 3 minims of Fowler's solution per dose, should always be given with the bromide.

If these principles were more universally observed, I am convinced that the percentage of cases of epilepsy successfully treated would be greatly increased, and that the popular notion in regard to bromide exerting a depressing influence on the mental activity of patients would disappear. It has been my experience, not once but many times, to hear from patients that they are happier and brighter as the result of taking bromide, an opinion heartily endorsed by those with whom they are in daily contact. I believe that bromides exercise a specific stabilising influence on some nervous mechanism apart from any effect that they may have on general reflex excitability.

While pinning my faith to bromides, I am not insensible to the value of other drugs as adjuvants, and there is no doubt that luminal has proved useful, sometimes alone, but more often in combination with bromide. It is a drug, however, which some patients cannot tolerate at all and which others cannot continue to take as long as is desirable without ill-effects. Borax, belladonna, and digitalis may be added to bromide mixtures, sometimes with advantage, but it is difficult to lay down any indications for their employment, and a long experience of the first-named does not permit me to share the optimistic views which have been expressed concerning its value.

Although introducing the subject of epilepsy in sufficiently gloomy terms, you may have been led by subsequent remarks on the use of bromides to regard me as a fanatical optimist obsessed with the idea that a sufficient ingestion of these salts would suffice to rid us of one of the greatest scourges of the human race. Unfortunately, I hold no such faith, realising, as one must, that a large proportion of our epileptic patients are more or less degenerate before they are obviously epileptic and that no method of treatment, even if successful in eliminating fits, would make of them efficient citizens. But it is time that something was said to combat the unjustifiable prejudice which prevails in many quarters against our most powerful weapon in the treatment of epilepsy. Greater moral courage is required of us in two directions; first of all, the courage to recognise and frankly confess the first evidences of epilepsy; and secondly, the courage to insist, in spite of all opposition, on the importance of immediate and long-continued treatment on the lines I have indicated. Epilepsy is a form of disorder which must be firmly suppressed without delay, and kept in subjection by fearless and unrelenting vigilance over a period of time which admits of no definition.

### Syphilis of the Nervous System.

In the course of my first lecture I ventured to submit that as physicians we should never claim to cure disease. May I now go a step further and submit that syphilis of the nervous system would be practically unknown if we did not claim to cure syphilis. That statement is not strictly accurate because there are always a number of persons who become infected with syphilis, who are either unaware of the fact or who neglect to be treated, and who may at any time develop syphilitic lesions of the nervous system. But with these exceptions the patients who present themselves to us with tabes dorsalis, general paralysis of the insane, cerebral syphilis, syphilitic my
&c., have mostly been sacrificed to the time-hon
but groundless tradition that a medical man pos
the knowledge which justifies him in telling a p
that he has been cured of syphilis. It is tru
large numbers of patients suffering from syphil
cured, and it is probably equally true that mo
cured now than used to be 20 years ago, but th
remains that we have no means of deciding i
particular case whether or not a cure has
effected. Twenty years ago we used to see pa
suffering from tabes dorsalis who had been "c
of syphilis by means of courses of mercury l
from two to five years, according to the pe
predilections of the curer. Now we are cons
meeting with similar sufferers who have been "c
by drastic courses of arsenical compounds, in ad
to or without mercury.

The public have always asked for cures a
deference to their wishes we have weakly claim
power to cure. If we were scrupulously hones
not lacking in courage, the profession would lon
have refuted the claim to cure syphilis, and h
successfully dealt with all active evidence o
disease, would have addressed their patients in
such as these:—

> "You have been put through a course of treatment
> has been successful in ridding you of all signs of active d
> and experience tells us that if you will submit to som
> syphilitic treatment about twice a year, perhaps a co
> pills or a few injections, you need have no fear of f
> trouble. If you ask me how long this must go on, m
> honest answer must be 'for the rest of your life.'
> have no means of deciding whether you are perma
> cured, and you must regard your periodic courses of
> ment as a method of health insurance with so sound a
> that you will be relieved of all anxiety in regard t
> future. Yes, this line must be adopted even if the W
> mann reaction in your blood is negative. Prevention
> better than cure, and freedom from constant worry is
> than both."

This is the kind of talk suitable for a p
whose primary chancre has just disappeared
treatment; but it would do equally well for a
of syphilitic myelitis or basal meningitis
successful treatment.

In regard to what are known as the parenchym
forms of syphilis of the nervous system, ge
paralysis, and tabes dorsalis, the results of
syphilitic treatment are less constant in
encouragement. The former disease has still
considered as incurable, although I have seen
good results from the administration of pow
antisyphilitic remedies renewed at frequent inte
The length of time which has elapsed since
apparent recovery of the patients is still too sho
enable one to judge whether the remission of
ptoms holds out hope of permanent relief.
remedies have been advocated from time to
only to be discarded after a brief enjoyment of fa
and I am inclined to believe that the malarial t
ment of which much has been heard during the
few years is doomed to share their fate.

### *Tabes Dorsalis.*

With the treatment of tabes dorsalis it is
a different story. In my pre graduate days we
taught that antisyphilitic remedies were us
sometimes even harmful, in the treatment of locon
ataxy. To-day these remedies are coming into
own, and I have no hesitation in subscribing t
view that this disease, in its early stages at any
can be checked and held in check by repeated co
of mercury, or of the arsenical compounds, o
a judicious combination of these metals. Le
choose two out of a large number of cases w
illustrate this principle, each serving to emph
a point of clinical importance.

Case 4.—In October, 1912, nearly 11 years ago, a
man consulted me about pains in his limbs from whi
had suffered for four years and which had been reg
and treated as due to neuritis. A detailed description
pains convinced me that they were the lightning pa
tabes dorsalis which, in my opinion, have features

tinguishing them from pains of other origin. Examination revealed no sign of any organic disease with the single exception that his appreciation of painful stimulation below the knees, on the inner side of his forearms, and on parts of his thorax was slightly less acute than the normal. A history was elicited of a venereal sore seven years previously, for which he had been treated for a month, and the Wassermann reaction of his blood was found to be positive. This patient is to-day a perfectly healthy man who would certainly pass as a first-class life for insurance just as he passed A1 for the army during the war. In the interval he has married, and is now the father of two healthy children. He is a scratch golf player and works very hard at his business, often with insufficient holiday. There can be little doubt that he owes his maintenance of good health to the fact that from the day he came to see me he has never allowed more than a few months to elapse without a course of antisyphilitic treatment, mercurial inunctions varied by an occasional series of injections of novarsenobenzol. May I add that, although the Wassermann reaction has been taken from time to time with varying results, these tests have never been allowed to influence the incidence or character of his treatment.

Case 5.—In April, 1908, I was consulted by a man of 51 years of age on account of lightning pains and some difficulty with vision. He presented unequal Argyll Robertson pupils, normal discs, slight relative analgesia over the skin of his legs, very sluggish knee-jerks, and complete absence of ankle-jerks. Although not in any way ataxic, the postural sensibility in his toes was not up to normal standard. It is interesting to note that this patient is a watchmaker and spends many hours a day doing fine work necessitating a considerable strain on his vision. He is still doing this work to-day and his physical signs have not altered. During the 18 years he has been under my care he has had courses of mercury at frequent intervals and occasional courses of potassium iodide

The first of these two patients has been referred to in order that emphasis may be laid on the possibility of making a diagnosis of tabes from the character of lightning pains before the development of physical signs, and on the success attending early and repeated treatment over a long period of years. The story of the second patient has been recorded with the object of showing that mercury and potassium iodide, if their administration is persevered with, may still be relied upon to hold in check the ravages of syphilis on the central nervous system.

The principles governing the treatment of syphilis of the nervous system do not really differ from those governing the treatment of syphilis of other organs, but in view of the value as well as of the delicacy of nervous tissues the importance of early diagnosis cannot be too strongly urged. If any real advance is to be made in the war against syphilis, it must depend on our having the moral courage to confess to our patients that we are unable to recognise any permanent cure for the disease. I am convinced that if this policy had been adopted when it should have been thousands of lives would have been spared and untold masses of suffering avoided.

## Disseminated Sclerosis.

Disseminated sclerosis has been chosen for very brief consideration in close proximity to syphilis of the nervous system because the two conditions possess many clinical features in common. In both instances the central nervous system is liable to attacks on its integrity which are not in any way regulated as regards time or place. In both we meet with remissions and relapses, but in the case of disseminated sclerosis, recognising as we do the remarkable powers of recovery exercised by Nature alone, it is a matter of great difficulty to estimate the value of any remedial agents we employ. Nevertheless, I have held the view for a long time, and I am not yet prepared to abandon it, that if the principles governing the treatment of syphilis are applied to the treatment of disseminated sclerosis, in spite of our ignorance of its causal agent, the results are often too striking to be disregarded or attributed entirely to the action of chance. Arsenic and mercury are employed more and more frequently in the treatment of this disease, but success, as in the case of syphilis, is mainly dependent on early diagnosis and on the indefinitely continued administration of the two metals just mentioned.

I cannot do better than cite a single case in support of the view that the repeated administration of arsenic, whether by mouth or through the skin, does exercise a beneficial influence on the course of the disease.

Case 6.—In April, 1912, a girl of 17 complained to me that a fortnight before our interview she experienced pins and needles in her right leg followed shortly by a sudden failure of power in her left leg. Three days later her left arm was numb and cold up to the elbow and she suffered from slight headache. On examination, I found the right disc hyperæmic with blurring of its edges. Both hands were lacking in postural sensibility and the left was almost completely astereognostic. The abdominal reflexes were absent on the left side and sluggish on the right. The left leg was spastic with ankle-clonus and extensor response. The power of the right leg was good, but its tactile and painful sensibility was diminished. Her gait was very ataxic.

On my advice she took arsenic in the form of Fowler's solution for three weeks out of every four, and when I saw her next six months later she expressed herself as being as well and as active as before her illness. Her only physical signs then were slight temporal pallor of the right disc, left knee- and ankle-jerks more brisk than right, and an indefinite extensor response in the left foot.

When I saw her next in June, 1914, she was perfectly well and I could find no abnormal physical signs. About two years later she began to neglect her arsenic, and in December, 1917, she came to me complaining that her left leg was weak. Examination showed that the left abdominal reflex was absent and the left plantar response extensor in type. The resumption of arsenic was followed by benefit, and in January, 1918, I could find no physical signs. Six months later she married, and in August, 1920, a healthy child was born. The arsenic was again neglected, and in January, 1922, she developed sensory disturbances in her left leg and loss of power in the right She was put through a course of intramuscular injections of glucarsenol and made a complete recovery. When I last saw her in July, 1924, she was perfectly well and leading a normal active life.

This story may be summarised in a few words. A girl of 17 was crippled by patches of disseminated sclerosis in April, 1912. In July, 1924—12 years later—after experiencing some vicissitudes and taking a great deal of arsenic, she was an active and apparently normal married woman with a healthy child 4 years of age. I am sceptical enough not to be convinced by this story that arsenic has specific powers in combating the disease we call "disseminated sclerosis," but a long experience of its effect in such cases leads me to think that if used early and persevered with it is the best weapon we can employ.

## Conclusion.

In the course of this, my second, lecture I have discussed the treatment of epilepsy, syphilis of the nervous system, and disseminated sclerosis, and have endeavoured to lay emphasis on two principles which are of outstanding importance if any measure of success is to be attained. The first of these is early diagnosis associated with a frank recognition of the fact that preventive measures must be our mainstay in the struggle against the diseases under review. The second principle is that of taking our courage in both hands and, in spite of the public demand for rapid cures, insisting on regulated treatment over long, perhaps indefinitely long, periods of time. Our knowledge of the natural history of these diseases does not permit us to shirk this responsibility or to take a line of less resistance.

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Glasgow Hospitals.—The annual report of Glasgow Royal Infirmary states that during 1925 more than 70,000 persons in all received attention; this was 1212 more than in the previous year. There were over 35,000 out-patients, an increase exceeding 10 per cent. The average period of residence was 18·2 days, as compared with 19, and the average cost of each patient £7 10s., a fall of 7s. 9½d. In 1890 the average residence was 31 days. The managers are increasingly anxious to relieve pressure and hasten convalescence by establishing a country annexe.—The annual report of Glasgow Victoria Infirmary announces that the governors have purchased 30 acres of land for the establishment of a country auxiliary, and that an early start will be made with the first section. There will be accommodation for 50 patients, and towards the cost of £50,000 Mr. W. Gilchrist-Macbeth has given £20,000.

# THE
# GORILLA AND MAN AS CONTRASTED FORMS.

*Being the Abstract of a Hunterian Lecture given in the Royal College of Surgeons of England on Feb. 26th, 1926,*

By Sir ARTHUR KEITH, M.D.Aberd., F.R.S.,
CONSERVATOR OF THE MUSEUM.

The history of the gorilla, which in a structural sense is man's nearest living relative, is closely linked with the Museum of the Royal College of Surgeons. The first description of the gorilla's skull was given in 1848 by Sir Richard Owen, who was then conservator of the Museum. That master-anatomist was impressed by the resemblance of the skull of the new anthropoid to that of the chimpanzee and came to the conclusion that the gorilla was in reality a highly differentiated species of chimpanzee. Although it is true that the adult males of one breed of chimpanzee may closely resemble the immature male gorilla and also the adult female, yet the expert eye has no difficulty in distinguishing between them. Hence, since Owen's time, anatomists have agreed to raise the gorilla to a separate generic rank. Another link which binds the Museum of the College to the early history of the gorilla is its possession of the first skeleton brought to Europe; Sir Richard Owen acquired it from Captain Harris in 1851. Lately several valuable additions have been made to the gorilla collection of the Museum. The African traveller, Mr. F. W. H. Migeod, had presented the skulls of two adult males obtained in that part of West Africa where the French Cameroons marches with British Nigeria, but on the French side of the frontier. These are the "furthest north" gorilla skulls which have come from Africa. Through Lieut.-Colonel R. H. Elliot the College have obtained skulls of that peculiar breed of gorillas which live in the mountainous regions between Lake Tanganyika on the south and Lake Edward on the north, and was first made known from the region of Lake Kivu by a German engineer in 1902, and hence is known as the Kivu gorilla. Colonel Elliot's specimens, one the skull of a gigantic male, the other that of a youth, come from the Congo frontier of Uganda and are the "furthest East" specimens which have come to Europe. Another African traveller, Captain J. E. T. Philipps, has collected a series of Kivu skulls in the south-western corner of the Uganda Protectorate, which have been presented to the Natural History Museum, South Kensington; the lecturer has been given free opportunities of examining Captain Philipps's specimens and of comparing them with those in the Museum of the College. The most valuable addition to the gorilla series of the Museum, however, has been made by the President of the College, Sir John Bland-Sutton. He acquired and presented a series of skulls and skeletons, collected in the Cameroons, to illustrate the remarkable growth and age changes which the gorilla passes through in its passage from youth to old age.

### *Distribution of the Gorilla.*

Thus the homeland of the gorilla extends across equatorial Africa from Nigeria in the West to Uganda in the East, a stretch of 1500 miles. But although the gorilla homeland is wide, its population is represented only by scattered and small family bands; from accounts furnished by travellers and hunters, one infers that the total population—males, females, and young—is well under 10,000. Spread over so wide a space one would expect to find well-differentiated local breeds or even species. There are only two breeds or races—the highland or Kivu race and the lowland or Gaboon race. The highlander lives on the brush and thickets which clothe the gullies and steep sides of his native mountains. The climate of his homeland, although on the equator, is wet, cloudy, and bleak; the Kivu gorilla lives at an altitude about 10,000 ft. above sea-level. Hence the highlander is provided with a longer and denser coat of hair than his lowland cousin. So distinctive are these two breeds—the highland and lowland—in external appearances that one expected to find differential marks in their skulls, and yet a prolonged search has failed to reveal any constant point of structural difference. It is true that the highlander is usually the larger and stronger animal; a male shot by Mr. Carl Akeley weighed 32 st. (205 kilos); the skull presented by Colonel Elliot has larger teeth and jaws than has ever been seen in a lowland form, yet among the highland skulls collected by Captain Philipps some are not above the lowland standard. One distinction is almost constant in the symphysis of the lower jaw of the Kivu gorilla. The genioglossus muscles of apes arise from a pit behind the symphysis. In the lowland gorilla this pit is usually large, in the highland gorilla it is usually filled up by bone, as is the case in all recent races of mankind.

Although the failure to find any constant anatomical difference between the lowland and highland races of gorilla may upset the systematic zoologist, it is of the greatest interest to the student of human races. For he is familiar with the fact that men of the same race show an extraordinary variability in their facial features, and also in colour of skin and hair. Such a variability is usually explained as being due to a mixture of race; amongst gorillas the degree of variability is even greater, but amongst them there can be no suggestion of mixture of race. In both cases the degree of variability may be taken as evidence of an evolutionary plasticity. For on the evidence provided by geology we may presume that man and the gorilla are both evolving, but in opposite directions, the one towards brain, the other towards brawn.

### *The Gorilla's Gait.*

Both Lamarck (1809) and Darwin (1871) supposed that if an anthropoid ape became, either from choice or necessity, a ground-living form it would, in the course of generations, acquire a human gait. A little reflection will convince anyone that an animal weighing 30 st., such as the male gorilla, must be a clumsy climber; its flight would be limited to such trees and branches as could carry so great a weight. Mere weight compels the adult male to a life on the ground. From the accounts which have come home from hunters and travellers we now know that gorillas are, particularly the adult males, ground-living forms, and apparently have been such for many a generation. Yet the gorilla still walks with a forward slant in his body, supporting and balancing his weight on his bent knuckles as he advances. His feet, it is true, have advanced nearer to a human shape than those of any other known ape. The essential structural characteristic of the human foot is the relatively great size and length of its tarsal element and the relative shortness of the outer four digits. In this respect the gorilla's foot stands intermediate to that of the chimpanzee and of the human child.[1] And yet the great toe of the gorilla can be, and is, used as a grasping thumb. Recently an animated discussion took place in the pages of *Nature* (Sept. 24th, 1923, et seq.) between Sir E. Ray Lankester and Dr. W. K. Gregory, of the American Museum of Natural History, as to whether or not a cast of the foot of a Kivu gorilla, which showed the great toe in alignment with the other toes, as in the human foot, could be regarded as a true or natural representation of the position of this digit. Both abducted and adducted positions are natural for the great toe of the gorilla; when the animal scrambles in thickets of bamboo in search of its favourite food—young bamboo shoots—it uses its foot as a grasping organ; when it waddles along the glades which intersect the undergrowth of its native jungle the foot is used as a supporting and propelling structure. The great toe falls into alignment with the other toes and becomes the chief point from which the forward impetus is obtained. Flexion lines, corresponding to those of the gorilla's foot, are to be seen on the sole of every newly-born child. Dr. T. Brushfield has recently recorded their presence in the feet of mongolian idiots of juvenile age. A strict comparison of the structural characters of the feet of man, the gorilla, and the chimpanzee, leaves the anatomist convinced that the human foot, in the course of its final evolution, passed through a gorilline stage.

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[1] See Keith: Evolution of Man's Posture, Brit. Med. Jour., 1923, i., 670.

### *The Affinities of the Gorilla to Man.*

This conviction is strengthened by certain other anatomical features of the gorilla's body. In early days of the Darwinian struggle opponents of the evolutionary theory laid much stress on the fact that man had a special muscle—the peroneus tertius—for raising the outer border of his foot, and that the muscle was his peculiar possession. We now know that the peroneus tertius is not constant in human anatomy; if a hundred bodies are dissected there will likely be five in which this muscle has not been separated from the long extensor of the toes, and ten in which the separation is only partial. European anatomists have known for many years that partial attempts to form a peroneus tertius do occasionally occur in the gorilla, but in only one case has a fully differentiated muscle been found. Recently, however, Dr. Dudley Morton,[2] on dissecting two gorillas, one of which belonged to the Kivu breed, found this muscle differentiated in both animals. It is difficult to think that the tendency to produce this muscle has arisen independently in two forms which are so near akin in structure and origin as man and the gorilla; one cannot conceive that using the foot in a plantigrade position would cause the outer part of the long extensor of the toes to split away from the rest and bring about a migration of the tendon of the separated part backwards along the outer border of the foot. What causes such useful variations to arise we do not know, but the tendency to produce the one in question is found in only man and the gorilla, and points to an inheritance from a common ancestor.

Such an intimate structural resemblance between man and the gorilla does not stand alone. In lower primates the origin of the soleus muscles of the calf of the leg is confined to the fibula; in man this origin has been extended to the whole length of the oblique line of the tibia. A tibial extension is to be found in 35 per cent. of gorillas and in a lesser percentage of chimpanzees. The extensor brevis pollicis is another muscle which has not become firmly fixed in man's body; it has arisen by the separation of part of the extensor ossis metacarpi pollicis; in 6 per cent. of white men and in a larger percentage of negroes this muscle, which was regarded as peculiar to humanity, remains undifferentiated or only partly separated. The only other animal which shows a tendency to produce this muscle is the gorilla; a representation of it is found in 20 per cent. of the animals dissected. On the inner side of man's upper arm is found the fibrous remnant of a climbing muscle—the latissimo-condyloideus; in 5 per cent. of human bodies muscle-fibres occur in this remnant. The latissimo-condyloideus is more reduced in the gorilla than in any other anthropoid; in 20 per cent. of dissections the muscle is represented, as in man, by fibrous tissue only. When we take into consideration these intimate resemblances between man and the gorilla, and keep in mind that this anthropoid makes a nearer approach in size and pattern of brain to that of man than any other known animal, the conviction is forced home that the gorilla has come by a larger share of man's inheritance than any other ape. In this matter the gorilla's cousin, the chimpanzee, is his nearest rival.

### *The Trend of Evolution in the Gorilla Contrasted with that in Man.*

The brain of man forms the climax of an ascending series. Between the stage represented by the brain of the marmoset and that exemplified by the gorilla a series could be chosen which would exemplify every grade of evolution. The skull of the adult male Kivu gorilla obtained by Colonel Elliot has a capacity of 620 c.cm.; some are known in which the capacity reaches 650 c.cm. Between the highest gorilla and the lowest human brain we know as yet only one intermediate stage—that represented by the brain of Pithecanthropus, and in size and pattern this brain has reached almost, if not quite, the threshold of humanity. The point of brain development reached by the human brain marks the furthest point attained by any primate, but in weight of body, in volume of lung, in size of tooth, massiveness of jaw, and strength of muscles—particularly those of mastication—the gorilla crowns the primate series. We have found no fossil remnant of any anthropoid which was so massively developed as is the gorilla. And yet at birth the gorilla is smaller (under 5 lb. in weight) than the new-born child, and is just as nude and helpless. Its skull is as rounded and smooth as that of a human infant, and the muscles of mastication are no larger. The temporal muscles, for example, start from the same base line on the sides of the skulls of the gorilla, chimpanzee, and man, but whereas the temporal muscles of the gorilla extend their origin until great bony crests are formed along the vault of the skull, those of the chimpanzee and of man stop short of such an extreme. In man the temporal muscles are arrested in their ascent at a stage corresponding to that reached by the gorilla in youth; in the chimpanzee these muscles become arrested at a point reached by the gorilla in early adolescence. In man the evolutionary tendency has been to retain more and more the structural characters of youth; in the gorilla the tendency has been in the opposite direction—to increase the size of jaw and strength of body. In his evolutionary career man has moved in the direction of brain, while his cousin the gorilla has moved in the direction of brawn. The evolutionary process which has produced such diverse forms from a common ancestor constitutes at once the most enigmatical and also the most interesting experiment to be found in the whole realm of Nature.

### *The Machinery of Evolution.*

Dr. W. A. Freund,[3] in 1872, when describing a patient, who, as we now know, was the subject of acromegaly, was struck by the fact that the structural changes to be seen in the body of his patient were anthropoidal in character. Dr. Harry Campbell in 1894, when the relationship of acromegaly to a disordered action of the pituitary gland was beginning to be recognised, observed that men and women who became the subjects of acromegaly underwent growth changes which were similar in nature to those which occur in the maturing phases of the gorilla. He was inclined then to explain acromegaly in man as an atavism or reversion to an ancestral or evolutionary stage—one which is now represented in the bodies of gorillas. It seems more legitimate, in the present state of our knowledge of the action of hormones on the growth of the body, to regard gorilline characters, whether they occur as a normal manifestation in the life-history of the gorilla or as an abnormal manifestation in the life-history of the acromegalic, as being due to an increased action of that element of the pituitary gland which influences the processes of growth. Those who oppose such an explanation on the grounds that no proof has been adduced that the pituitary gland of the gorilla is exceptionally large, forget that our recognition of pituitary influence cannot be inferred from the size of the pituitary gland. The pituitary is a complex body producing many substances, some of which subserve immediate physiological purposes; others can somehow stimulate and regulate the growth of diverse anatomical systems of the body. The anatomist cannot assess the functional potentiality of a pituitary gland by the crude use of scales or microscope.

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[2] Anat. Rec., 1924, xxvii., 333.

[3] See Keith: The Nature of the Skeletal Changes in Acromegaly, THE LANCET, April 15th, 1911; Progeria and Ateleiosis, Ibid., Feb. 1st, 1913.

There is an infinitely more delicate method. The pharmacologist recognises the presence or absence of one element secreted by the pituitary gland by its influence on the contraction of non-striated muscle. The clinician recognises the action of another element formed by the pituitary gland by its influence on the growth of the muscular, bony, and alimentary systems of the living body; he discovered these effects by the study of cases where the action of the pituitary becomes disordered as in the subjects of acromegaly. It is just those systems which undergo so great a degree of increase during the later stages of growth of the gorilla. We may therefore legitimately infer that, in the evolution of the gorilla, the pituitary has played a prepotent part. The evidence, as it stands, is enough to justify the student of man and ape in believing that he has obtained a real glimpse into the machinery of evolution.

# ASSOCIATED ORGANISMS CAUSING EMPYEMA.

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INTEREST in the following case of empyema lies chiefly in the fact that two organisms were associated in its production; the one a mycelium, and the other a pneumococcus. Alone neither was pathogenic to guinea-pigs, but in association they always produced lesions. Clinically, the striking feature of the case was its chronicity. Probably the start of the empyema can be dated from an "attack of pneumonia," which occurred five months before the patient came under observation. He was in the ward for a further three months, and during that time was never urgently ill, nor did he show marked signs of toxæmia.

### *Clinical History.*

The patient was a man, aged 19, admitted to the Middlesex Hospital under Dr. C. E. Lakin in February, 1924. In the history there is little to note. As a child he made a good recovery from an attack of measles, and was free from any illness until September, 1923. In September, 1923, he had "pneumonia" at home, from which he "improved very slowly," his cough and expectoration persisting until admission. On admission the patient looked pale and seedy, but was not urgently ill. He was more comfortable lying on his left side. The temperature chart showed very slight irregular fever in the neighbourhood of 99° F., while the pulse-rate varied between 90 and 100. Slight clubbing of the fingers only was present. There was no cyanosis or respiratory embarrassment. His cough was only troublesome at intervals, and the sputum was muco-purulent, greenish in tinge, and did not exceed 2–3 oz. a day. Typical signs of empyema in the left pleural cavity were found, the heart's apex beat being 2¼ inches from the mid-sternal line. X ray examination confirmed the clinical findings. With an exploring needle a few c.cm. of pus were withdrawn. It was thick and of a greenish-yellow tint. One of us (L. E. H. W.) examined this pus and found the predominating organism to be a mycelium, but there were also present a few pneumococci. The patient's blood showed a leucocytosis of 22,500 per c.mm., of which 68 per cent. were polymorphonuclear cells. The Wassermann reaction was negative, so also was the tuberculous complement-fixation test. The sputum contained neither tubercle bacilli nor any mycelium.

Aspiration was decided upon, and 17 oz. of pus were removed. The patient improved rapidly, putting on 8 lb. in weight during the following week. The physical signs at the left base showed that the fluid was clearing, particularly behind, near the spine. After two or three weeks, however, little change was appreciated in the physical signs, for the absence of breath sounds and the marked dullness on percussion (more particularly in the left lower axillary region) persisted. The apex beat was now 3¼ inches from the mid-sternal line. Rib resection was not undertaken as the patient's general condition continued to improve. He was given small doses of potassium iodide three times a day for six weeks.

The sputum, having been examined regularly, was found three weeks after aspiration to contain a mycelium apparently identical with that obtained from the pleural cavity. It is to be noted that the sputum had not increased in quantity nor changed in naked-eye appearance. Further progress was slow and uneventful, and the patient was discharged in May, 1924. When next seen in August he said he was "feeling well," and the physical signs showed no evidence of fluid, but the air entry into the left lower lobe was still very poor. His fingers showed the same slight degree of clubbing.

Over a year later, in October, 1925, in response to a query, he wrote: "I have not required any medicine since October, 1924, and have been at work since January, and feel very well—in fact, better than before my illness."

*Bacteriological Findings.*—The specimen of pus aspirated from the pleural cavity was thick and of a greenish-yellow colour. Careful search failed to reveal any of the macroscopic sulphur-yellow "granules" characteristic of true actinomycotic infections. In stained films of the pus the predominant organism was found to be a mycelium the threads of which were often of considerable length, many of them showing segmentation of the protoplasm and the presence of the so-called "spores"; but neither branching of the mycelium nor clubbing of the ends could be observed. A few encapsuled pneumococci were also present. In culture the mycelium grew in about a week under aerobic conditions on ordinary agar, the colonies being small, opaque, and difficult to pick off with the needle. The threads in culture were shorter, thicker, and more bacillary in form than those in the original specimen. Neither the original mycelium nor the culture was acid-fast.

With a view to testing the pathogenicity of the organisms, three guinea-pigs were inoculated subcutaneously with 2 c.cm. of the undiluted pus. Within a week all three animals had developed at the site of the inoculation hard subcutaneous inflammatory masses, about the size of a half-crown. There was no glandular enlargement. A post-mortem examination on one of these animals showed considerable subcutaneous œdema with slight hæmorrhages at the site of inoculation, and a small abscess cavity containing no organisms in films or cultures. Some of the tissue from this animal was macerated in saline and inoculated into a further guinea-pig, but failed to produce any lesion. The two other animals of this series were allowed to live and in three weeks had entirely recovered; when finally they were killed, at the end of six months, no tuberculous lesions were found. A further guinea-pig was inoculated subcutaneously with 2 c.cm. of a fresh specimen of the pus, and in ten days had developed a discharging sinus, the discharge containing a few mycelial threads, but no pneumococci. This finding was verified by culture. Sections of the skin and subcutaneous tissue from this animal showed much inflammatory reaction with the presence of occasional mycelial threads.

As experiments with the original specimen showed that lesions could be produced in the guinea-pig, it was decided to try the effect of inoculation with pure cultures. A further series of three guinea-pigs was inoculated subcutaneously as follows: (1) with 2 c.cm. of a strong emulsion of the pure mycelium; (2) with 2 c.cm. of a strong emulsion of the pure pneumococcus; (3) with 2 c.cm. of a mixture of the two emulsions in equal parts. Of these animals, the last-named only developed a hard subcutaneous inflammatory mass, similar to that produced in the animals inoculated with the original specimen of pus. The lesion was most marked on the tenth day and had entirely subsided at the end of three weeks. The other two animals showed no lesion at all. The experiment was repeated on a further series of these animals with the same result, except that the lesion was extremely small and had disappeared in a fortnight. The pathogenicity of the pneumococcus was tested on a mouse by the intraperitoneal inoculation of an agar slope of the pneumococcal culture. The animal survived the inoculation and showed no sign of illness at any time.

### *Conclusions.*

The result of the animal experiments indicates that the two organisms—mycelium and pneumococcus—when associated together were capable of producing lesions, but that when separate they were incapable of so doing. There was no suggestion throughout the entire investigation that the mycelium should be classed with the streptothrix actinomyces as described by Homer Wright.[1] The mycelium had the characters, both morphological and cultural, of the organism of Boskröm, usually regarded as a secondary and non-pathogenic invader from the mouth. In this patient the empyema was probably pneumococcal in origin, as he had "pneumonia" five months before admission to hospital. It would seem logical to infer that the empyema tended to be more chronic and stubborn owing to the superadded infection with the mycelium—probably arising from the mouth. In these circumstances aerobic oral mycelia can hardly be regarded as entirely non-pathogenic.

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[1] Biology of the Micro-organism of Actinomycosis, Jour. of Med. Research, 1904.

Symbiosis of micro-organisms is a well-recognised fact. The organisms of gas gangrene thrive well in a wound infected also with pyogenic cocci. The *B. influenzæ* (Pfeiffer) is considerably assisted by the presence of concomitant staphylococci and pneumococci. Again, the streptococcus has been shown by Gaté Papacostas and Billa[1] to increase the toxin production of the diphtheria bacillus. In our case we are justified in assuming that an originally non-pathogenic mycelium was capable of pathogenicity when associated with a pneumococcus—even though the latter had apparently become avirulent.

We are indebted to Dr. Lakin for his kindness in allowing us to publish this case.

# ENCEPHALITIS FOLLOWING OPERATIONS ON THE TEMPORAL BONE.

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Encephalitis resulting from an operation on the temporal bone must be a very rare condition, as a search through literature discovers no references. Two such cases have occurred within my own experience, the first under Mr. Macleod Yearsley when I was house surgeon to the Royal Ear Hospital, and reported by me in The Lancet, 1900; the second, a private patient on whom I performed a radical mastoid operation in September, 1922. As regards the first case, it suffices to say that although the encephalitis was the predominant complication, it was accompanied by an abscess in the temporo-sphenoidal region; that the patient was in a condition of acute maniacal delirium for over three weeks; that a large hernia cerebri developed and that recovery eventually took place.

In the second case encephalitis alone was present, the symptoms were much less severe than in the first, and complete recovery took place. The history of this case is as follows.

Mr. A, aged 38, consulted me in regard to a chronic discharge from the right ear of over 23 years' standing; deafness was also complained of. On examination almost total destruction of the drum and ossicles was observed, together with the presence of much tenacious pus and debris; no pain or tenderness was present.

*Operation.*—On Sept. 10th, 1922, I performed a radical mastoid operation. The antrum and middle ear were full of pus and cholesteatomata; the bony roofs of both cavities were missing. On closer examination it was found that while the meninges formed a roof to the tympanic cavity they were missing from over the antrum, and brain tissue was actually protruding into that cavity in fair quantity. The operation was performed on the usual lines and all cholesteatomatous and septic material was thoroughly removed from the antro-tympanic cavity. A meatal flap was formed and the cavity packed with gauze soaked in iodoform emulsion. The post-aural incision was sutured. The night of operation the temperature rose to 101° F., but was normal next morning and remained so until the fifth day. During this period the patient's general condition was quite satisfactory and he complained of no local pain or headache. The nurses thought that occasionally "he seemed a little bit queer" mentally. On the fourth day the first dressing was done and everything found perfectly satisfactory. On the evening of the fifth day the temperature rose to 100° and he was restless. Next morning the temperature remained at 100°, and he was very mildly delirious, but complained of no pain or headache. On the evening of the sixth day the temperature rose to 102·4° and he was definitely delirious and restless; bromides were given. From now until the twenty-eighth day the temperature varied from 100° to 103·6° with an occasional drop to 99°. The pulse, which was 74 before operation, varied from 60 to 80, while respirations, usually 24, never reached higher than 28. He only complained of headache three times, but it was apparently not severe in degree. He vomited twice, on the seventh and the twenty-eighth days. During the whole period from the fifth to the twenty-eighth day he was more or less delirious, usually mildly so during the day, more markedly so at night, when he had to be controlled by drugs, but his condition never passed into that of stupor. At no time was there rigidity of the neck muscles, nor was Kernig's sign ever present. The local condition was always satisfactory. The post-aural incision healed by first intention. Packing the antro-tympanic cavity was discontinued on the eighteenth day, and subsequently a daily toilet was performed, consisting of syringing the cavity with boric lotion and afterwards instilling 50 per cent. spirit lotion. On the twenty-ninth day he left the nursing home and passed under the care of his own medical adviser.

I next saw him on Dec 10th, 1922—i.e., about two months later—and found him in a very satisfactory condition. He was in perfect health and the antro-tympanic cavity was dry and completely lined with white shining epithelium.

The diagnosis of encephalitis was made because the symptoms did not fit in with any other intracranial complication, and because the presence of brain tissue in the antrum obviously lent itself to injury or infection. The symptoms which characterise simple uncomplicated encephalitis would, therefore, appear to be pyrexia of some weeks' duration accompanied, by delirium more or less marked. The patient at no time appears very ill. The prognosis would appear to be good. If other complications arise, as in the first case referred to, in which a temporo-sphenoidal abscess was present, other and more serious symptoms will appear. Post-operative encephalitis of this type can only arise when the brain tissue itself has been injured. In my experience this has happened on two occasions, in both of which chronic mastoid disease had destroyed not only the bony roof of the antrum but also the meningeal covering of the brain, allowing the substance of the latter to project into the antral cavity.

It is extremely difficult in these cases to remove the septic contents of the antrum without damaging the brain tissue to some extent, and the degree of encephalitis that follows seems to me to depend upon two factors: (1) the amount of trauma inflicted on brain tissue; (2) the thoroughness with which the antro-tympanic cavity is cleared from infective material. The accomplishment of this latter object is much facilitated by the use of properly made iodoform emulsion used as a dressing.

**A School for Myopes.**—Mrs. Bridge, B.A. Lond., formerly principal of a school in Brighton, has opened a school for myopes at the Manor House, Piltdown, near Newick and Uckfield, Sussex. The aim of the school is to educate children with defective eyesight. The teaching is largely oral, and practical and concrete methods are adopted wherever possible. Much time is spent in the open air and sedentary work is reduced to a minimum. The schoolroom is specially built for the purpose and suitably fitted. The special desks used in the L.C.C. myope schools are used. The curriculum includes dancing, eurythmics, musical appreciation, and certain handicrafts, beside the usual English subjects and French. Advantage is taken of the wireless and of good gramophone records. Outdoor occupations and interests, such as gardening, poultry keeping, pets, &c., and simple home duties, alternate with the ordinary lessons, so that the time which may not be spent in reading is both usefully and happily occupied. At present only ten children can be received. They share the home life of the principal's own children, on whose account she first made a study of the need of special education for myopes.

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[1] Bull. Soc. de Sci. Méd. et Biol. de Montpellier, 1921–22, iii., 478.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### SECTION OF UROLOGY.

At a meeting of this Section held on Feb. 25th, Mr. R. H. **Jocelyn Swan**, the President, being in the chair, Prof. **Hugh MacLean** read a paper on the

### Testing of Renal Function

in relation to the treatment of renal disease. It was important, he said, to reduce the number of tests to a minimum, and all necessary information could be gained from the estimation of the blood-urea and the urea concentration in the urine. The blood-urea was variable; 20 mg. was about the normal for young people, but it might reach 80 mg. in healthy people past middle life. Many conditions other than kidney trouble could increase it, and alone it was unreliable, except that if it were normal the kidneys could not be in a very bad state. The water test, extensively used in America, gave much trouble to the patient but no more information to the doctor. The simplest test of all was to starve the patient of fluid from 15–20 hours and then estimate the urea in the urine by the hypobromite method.

*Albuminuria and Hæmaturia.*—Albuminuria was common; it hardly ever led to nephritis in children. The patient was usually a bit overgrown and neurotic and the urine showed no casts. In such a case the albuminuria meant nothing. Adults might have albuminuria and even casts without any symptoms of disease and with repeatedly normal readings in the urea tests. Another type of patient passed albumin, casts, and blood, and definitely had something wrong, probably a mild attack of acute nephritis. Recovered cases of nephritis might improve in their urea concentration from 1·3 to 4 or 4·5 per cent. and still have some albuminuria. Continuance of the albuminuria was, therefore, no indication that the kidney was passing into the chronic condition. Some perfectly healthy people continued to pass albumin for 20 or 30 years after an attack of scarlet fever. It was important to examine the centrifugalised deposit. He cited the case of a small boy with curious attacks of pallor, pain, and some difficulty of micturition. There was no evidence of nephritis, but the centrifugalised deposit of his urine was full of cystin crystals.

*High Blood Pressure and Nephritis.*—Boys of 16 to 19 often passed a little albumin and had a blood pressure of 155/80. In most of these cases there were no subsequent developments. Many healthy people had abnormally high blood pressures without symptoms of ill-health. If the kidneys got involved when the high pressure occurred with arteriosclerotic changes, the end was not far off, but they often escaped, even when the veins of the arm were twisted and swollen.

*Treatment.*—Nothing much could be done in acute or chronic nephritis, said Prof. MacLean, except to put the kidneys under the best possible conditions. The patient should be kept warm and given glucose by the mouth. Many who could not drink milk could take a 50-per cent. solution of glucose, which passed so quickly into the intestine that a certain amount was retained even if the patient vomited. Diuretics were of no use; there was already an excessive amount of urea, which was the best diuretic known. In the parenchymatous type, where the patient had a tremendous œdema and was passing protein in the urine, a good solid diet with plenty of protein was beneficial. 80–100 g. doses of urea sometimes promoted diuresis, which very often hung suspended on a trigger and was released by most unexpected factors. Baths were sometimes helpful, and nicking with a knife was better than Southey's tubes. There was no evidence that protein did any harm whatever. Animal experiments showed that a rabbit would not develop nephritis even on a diet containing 70 per cent. of protein if it were also given green vegetables in minute amounts. It was better to reduce the protein in very acute nephritis, but in advanced chronic cases it did not matter. It was wrong to interfere with a high blood pressure; the body became accustomed to it and the patient was better left alone, unless it was causing definite symptoms.

*Discussion.*

Sir **Thomas Horder** said that he was unable to believe in the wisdom of reducing the tests of renal function to a minimum. The condition of nephritis was so complex, being possibly not a disease at all but a general metabolic disturbance which produced kidney changes amongst other effects, that we might be "caught out" if we reduced the tests of a single organ to a minimum. It was premature to say which were the best tests. The significance of casts depended on the criterion of the examination. He had given up attaching importance to casts found after careful examination of a centrifugalised deposit. In many cases nephritis progressed very slowly indeed, if the patient escaped secondary infections like subinfection of the alimentary tract, mild sore-throat, coryza, &c. Acute nephritis was very often an exacerbation of the kidney condition due to such infection. A scarred kidney revealed only by albuminuria was not uncommon. The present generation tended to hustle their renal cases too much or to be disappointed too soon; in the old days renal patients were carefully nursed for months. Sometimes decapsulation would start a diuresis which, once obtained, might go on. Possibly the recovery obtained in chosen cases might be due less to the actual decapsulation than to the escape of fluid by the incision, and other operative procedures might do as well. He agreed with Prof. MacLean about the diet in chronic cases. There was as yet no rational pathogenesis of nephritis; how, therefore, could there be a satisfactory therapeusis?

Sir **John Thomson-Walker** dealt with the surgical side of the problem, which was largely concerned with cases of enlarged prostate, and in 80 per cent. of cases dealt with a temporary condition where the renal function would be almost entirely recovered in ten days with proper treatment. He had always suspected that the good effect of decapsulation in œdematous cases was due to the incisions. He agreed with the desirability of reducing the tests, and believed in the urea tests as opposed to the colour tests—viz., phenolphthalein and indigo-carmine. The urea-concentration test forced the kidney to work up to its highest power, which was what the surgeon wanted to know. The decision for or against operation depended on: (1) The ability of the surgeon to avoid complications; if a patient with a low urea function got bronchitis, hæmorrhage or a little temperature it would be sufficient to kill him. (2) The surroundings of the patient and the experience of the nurse. The blood-urea was only a guide where half the kidney tissue was destroyed, and it gave a good idea of the progress of a case. He had no faith in renal indices; he wanted to know how much blood-urea there was and what the kidney could be forced to eliminate.

Sir **William Willcox** agreed that the two urea tests were the most important, but pleaded for the estimation of the chlorides in urine as almost equally important. They were always below 0·5 per cent. when the kidney was damaged, and might fall to 0·01 per cent. in water-logged cases. Prognosis in nephritis was extremely difficult, for cases varied enormously. "Trench nephritis" cases might clear up completely in a few months, but civil cases ran a very chronic course. He regarded kidney disease as analogous to asthma and hay fever—a sensitisation of the kidney tissue to some particular toxin, for instance, streptococcal sore-throat. It was extraordinary how sensitive the kidney might be and how varied its response. Patients should be given hospital treatment for many months. The symptoms did not go pari passu with the blood-urea, but urea tests were valuable in distinguishing between renal and cardiac cases. He thought that chronic dropsical cases might sometimes be syphilitic.

Dr. J. W. McNEE agreed with Sir Thomas Horder that it would be a pity to reduce the tests to two and forget how crude they were. Extra-renal factors such as diet, failure of the liver or cardiac disability counted in them for a great deal. He regarded the blood-urea as valuable, not as a single estimation, but as a constant guide to the progress of the case. The urea-concentration test, unfortunately, did not always give the information required of it. The water-concentration test was easy and often most informative; it showed if the kidney had lost the power to concentrate, and distinguished between the high blood pressure conditions and true chronic nephritis. The blood-creatinin test was also useful. Frequently a case would get much better within a few weeks and the albuminuria be reduced to ½ or 1 per cent., but there the child would stick and continue to show casts. The attitude of the doctor should be to expect a complete cure in the majority of his cases, and he should go on trying for it until there was other evidence to show that the case had gone on to a progressive nephritis. A valuable sign of this was the appearance of fatty casts containing doubly refracting fat. He regarded diuretics as "hit or miss" drugs, possibly entirely non-specific, and began always by giving a fair trial to those least likely to do harm. He had found that better results followed the low protein diet given in America than the more haphazard diets of this country. Chronic cases often did best on a mixed average diet.

Mr. CYRIL NITCH dealt with the surgical aspect, and said that he relied most on the urea-concentration and blood-urea tests, but regarded the clinical condition of the patient as a third test of equal importance. He only used indigo-carmine when it was inadvisable to catheterise a ureter; it was not very reliable. Specimens for urea-concentration tests should be collected by an indwelling catheter, as residual urine would vitiate the findings. He did not think the blood-urea figure of much value unless it was over 50 mg. per 100 c.cm., when it was a contra-indication to operation. He quoted two cases showing that the concentration of urea was not a reliable guide to prognosis, but he would not care to operate if the figure were lower than 1·7 per cent.

Dr. GEOFFREY EVANS pointed out that the use of these tests was to test renal function, not the fact of renal disease; they were no use for the diagnosis or prognosis of early kidney disease, as they were only positive when the reserve of the organ was lost. Nephritis might go on for five years without failure of renal function. More important than the symptoms of failure of renal function were the signs of renal disease, such as hæmorrhages—in kidney, retinæ, uterus, &c. Marked albuminuria was a significant indication of active disease. When looking for casts it was important to see that the urine was fresh and not very dilute. The most important part of the treatment was lengthy rest in bed, up to 12 months if necessary, at any rate until there were no red blood cells in the urine. Once a patient got well he remained well. Obvious septic foci should be removed. Too little was known about diuretics for a pronouncement on their value or harm. Diuresis might depend on extra renal factors, as had been shown by recent experiments with "euphyllin," a diuretic which worked by causing a discharge of chlorides from the cells and their accumulation in the blood.

## SECTION OF COMPARATIVE MEDICINE.

A MEETING of this Section was held on Feb. 24th, with Mr. F. T. G. HOBDAY, the President, in the chair, when Dr. P. H. MANSON-BAHR read a paper on the

*Relation of Wild Animals to Certain Diseases of Man.*

He said that nowadays it was only in the tropics that man still came into the necessary prolonged and intimate contact with the fauna of his neighbourhood and so became a prey to their disease germs. It was probable that the virulence of these germs was originally much greater and that a state of harmony between host and parasite had been gradually attained, the germ retaining its virulence for non-immune individuals. The susceptibility of man to parasitic diseases of animals was strong evidence in favour of the Darwinian hypothesis.

*Trypanosomiasis.*—The various trypanosomes had become adapted to apparently harmless existence in the blood of many varieties of animals, especially in Africa. Man had become infected only with *T. gambiense* and *T. rhodesiense* in Africa and with *T. cruzi* in South America. The range of sleeping sickness was co-terminous with that of the definitive host, the tsetse-fly. There was much evidence that the infection was now essentially spread from man to man, but Speke's sitatunga, a handsome antelope which had been found naturally infected, was admirably adapted to act as a reservoir of the trypanosome by its wary habits and its range in dense and impenetrable papyrus on the lakes and swamps of Eastern and Central Africa. The sleeping sickness of *T. rhodesiense* was a more rapid, fatal, and resistant form than that of *T. gambiense*, and its distribution corresponded very closely to that of the tsetse of big game. The trypanosome of the big game in this area was indistinguishable morphologically from *T. rhodesiense*, and some observers believed them to be identical. The common waterbuck, the reedbuck, and the duikerbuck were commonly considered to be the reservoir hosts of *T. rhodesiense*. The disease produced by the South American trypanosome was a chronic or acute disease of a myxœdematous character, chiefly seen in children, and the definitive host was a curious reduviid bug, *Triatoma megista*, which was often found naturally infected and lived on armadilloes. The other reservoir hosts were the Azara's opossum and the rock cavy of Brazil.

*Leishmaniasis.*—The peculiar distribution of kala-azar and its association in the Mediterranean basin with a similar infection in dogs indicated that it was in some way connected with a free-living reservoir host. It was communicable to laboratory animals, jackals and monkeys with difficulty, but recently Smiley, Young, and Meleney had found that the hamster was readily susceptible, and that an enormous proliferation of the parasite took place within this animal, without apparently affecting its health. Possibly, therefore, the parasite was transferred to man from this small rodent through the agency of a biting fly such as Phlebotomus.

*Leptospiral Infections.*—Weil's disease was described in 1880, and its parasite in 1916. The *Leptospira icterohæmorrhagiæ* had since been found to exist normally in the urinary tubules of the European rat and Japanese field vole. A young fox was recently found naturally infected near Mill Hill, and captive animals might contract the disease through eating infected rats. Infected hosts passed the organism in the urine, and spirochætes of this type had recently been found widely distributed in water. Why the closely related *Leptospira* of yellow fever was a parasite of man only was a matter of much interest; probably the reservoir animal had yet to be discovered. The *Leptospira hebdomadis* of the seven-day fever of the Japanese lived similarly in the urinary tract of the common field vole, *Microtus montebelloi*.

*Rat-bite Fever.*—The spirillum of this world-wide disease was transmitted by the brown rat (*R. rattus* and *R. alexandrinus*) and was probably identical with *Spirillum laverani* and *Spirillum muris*, commonly found in the blood of rats and mice. The bite of the ferret and domestic cat had also been incriminated.

*Rocky Mountain Spotted Fever.*—This severe typhus-like disease was endemic in limited districts of Montana, Idaho, and Wyoming. The causative *Dermacentroxenus rickettsi* was conveyed by the bite of a local tick which commonly infested the Rocky Mountain goat, badger, lynx, bear, coyote, and other animals. The larval and nymph stages of the tick developed principally on the ground squirrel and woodchuck, which were considered to be the main reservoir hosts of the Rickettsia.

*Plague.*—Although the black rat (*R. rattus*) and its variants were the main reservoir host of plague, several other rodents might replace it. The ground-squirrel played an important part in California and in Southern Russia and Mongolia. The summer outbreaks of pneumonic plague in Mongolia and Manchuria corresponded with the hibernating habits of the ground-squirrels. In these regions the common house mouse was held responsible for winter outbreaks, though it was not incriminated elsewhere. In North China, Siberia, and Manchuria the Mongolian marmot was said to harbour the bacillus during hibernation and to cause outbreaks among the hunters, who lived huddled in underground hovels during autumn and winter. The musk-shrew and Bandicoot rat also played a part in plague propagation in India. Plague was first introduced into South Africa in 1901 and was then confined to domestic rats, but further outbreaks showed that the Cape hare, white-nosed rat, Cape jumping hare, and gerbilles were responsible for transmitting the infection. Carnivores preying on these rodents died of plague, and when the authorities found the remains of gerbilles in the fæces of sick mongooses and suricats, they took it as an indication that plague was endemic in that area. A shrew which lived in the houses in Senegal and West Africa was said to carry plague, and rabbits and hares had been found naturally infected in England.

*Tularæmia.*—This plague-like disease affected jack-rabbits, gophers, and other rodents in California, and was communicable to man, particularly field workers and dealers handling infected rodents.

*Melioidosis.*—This was a glanders-like disease of man occurring in Burma and the Malay States. The organism—*B. whitmori*—was a natural infection of the Malay rat, the local representative of *R. rattus.*

*Malaria.*—Strangely enough, human malarial parasites had never been found in any other vertebrate, although the great apes had their own species of plasmodium, from which it might be inferred that the original reservoir host of man's malaria was some extinct anthropoid. It was still a puzzle how these parasites with an intricate life-history became adapted to such dissimilar hosts. Possibly the blood protozoa of mammals were once parasitic in plants and became adapted to insects which fed on these plants, and thence to warm-blooded animals. Flagellates closely allied to Leishmania had been found in the latex of plants, and Migone had recently shown that a plant-bug was responsible for the spread of infection from plant to plant in Portugal. Morphologically, these and other flagellates inhabiting the intestine of house-flies, blue-bottles, and biting flies were indistinguishable from leishmania and trypanosomes.

Dr. Manson-Bahr illustrated his paper with numerous lantern slides and stuffed specimens of the animals mentioned.

### *Discussion.*

Dr. A. **BALFOUR** said that the problem of the origin of disease was insoluble, but the question of how human disease due to animal and vegetable parasites first began might be answered some day. The study of parasites responsible for certain plant and animal diseases suggested that the process of adaptation had been at work from the very earliest times. So far the only plant disease that could be called transmissible to man was the *Bacterium tumefaciens.* Recent research had not encouraged the idea that the leptospiral forms in insects were related to trypanosomes. It was curious that no reptile or bird had been incriminated in human disease; the only bird diseases conveyed to man were the psittacosis and aspergillosis of the domesticated parrot. It was most important to keep plague out of a country, for once it got in it was impossible to control these small rodents who might harbour it. Possibly we should find that wild animals played a greater part in the dissemination of disease than was yet known.

Dr. H. H. A. **SCOTT** mentioned rabies and the presence of *B. aertrycke* in some hamadryad baboons, causing acute intestinal infection; also that of the Morgan I. bacillus, which was associated with summer diarrhœa in infants, in some cercopitheque monkeys at the Zoo.

Dr. T. W. **CAMERON** referred to the helminth infections carried by wild animals, particularly the echinococcus, recently found in the wild fox. The parrot carried an organism probably identical with paratyphoid B, and all three forms of *B. tuberculosis.* The diphtheria said to be conveyed by wood pigeons and chickens was due to a totally different type of organism from the human bacillus, though the avian condition had caused a few cases of pseudo-diphtheria in children. Domestic ducks might harbour *B. aertyrcke.* Anthrax decimated the mammals of Africa: he asked whether it could be conveyed to man through eating infected flesh.

Major C. D. **DAVENPORT** asked what was the relationship between the dog, the bug, and Leishmania.

Dr. **MANSON-BAHR**, in reply, said that man was not subject to plant diseases because he had largely ceased eating raw vegetables. Ergotism was perhaps the only exception, except for the recent suggestion that beri-beri was not a deficiency disease but was due to eating rice infected by a fungus. Birds were so delicate and died so rapidly from any infection that they were not likely to convey disease to man. The rabies conveyed by wild animals was much more virulent than that of the dog, possibly because jackals and wolves lacerated the faces and heads of their victims. Anthrax was usually destroyed by the gastric juice and so was not conveyed by ingestion. The Mediterranean dog was susceptible to Leishmania and got something very like kala-azar, but the Indian dog did not, probably because the bug did not carry kala-azar and the sandfly did. In the Mediterranean area the dogs lived so close to man that the Phlebotomus transmitted the disease to both.

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## MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.

AT a meeting of this Society, held at the rooms of the Medical Society of London on Feb. 26th, with Dr. **WILFRID S. FOX**, the President, in the chair, a discussion on

SYPHILIS OF THE HEART AND AORTA

was opened by Sir **THOMAS HORDER**, who dealt especially with the early signs and symptoms of this condition.

The importance of the subject, said Sir Thomas Horder, rested on four basic facts. The first was that syphilis was a disease which was eminently amenable to treatment. The second was that in this, as in so many other disease processes, the success of treatment was in direct proportion to the early commencement of it. Thirdly, the tissues concerned were of vital importance, not only to health, but to life; and fourthly, if structural changes had set in before the disease was recognised, then, even though healing took place to a large extent, as it was known to do, the secondary changes in heart and aorta resulted in a limitation of activity, and even premature death. Hence the supreme importance of making every effort to diagnose and commence to treat the disease before these structural changes had set in. The post-mortem room evidence was that syphilitic disease of these structures was not rare; there was an incongruity between this evidence and that of clinical experience, in that the physician seldom satisfied himself that he was dealing with an early case of syphilitic disease of the aorta or of the heart. Thus it was a duty to be constantly on the lookout for the disease in practice, especially as it was very prone to be latent. One reason for this latency seemed to be that neither of the structures of the heart which yielded physical signs was often affected by syphilis—namely, the pericardium and the endocardium. All were familiar with cases of aortic incompetence which there seemed every reason to attribute to old syphilis. He sometimes drew attention to what he believed to be a parasyphilitic lesion of the mitral cusps, taking the form of mitral regurgitation, with a highly musical apical systolic bruit, of the kind one encountered in the routine examination of cases of tabes dorsalis. Also, there was a typical condition of heart-block when anatomical change had occurred in the bundle of His. But he did not propose to deal with parasyphilitic disease of the cardiovascular system, but rather to draw attention to the disease in its early and progressive stages, and afterwards to consider what was the appropriate treatment.

Sir Thomas Horder did not doubt that the thoracic aorta was more often attacked by syphilis in its early stages than was the heart itself, judging by the post-mortem data, the ascending part of the thoracic arch being the zone of attack *par excellence*. When the structures near the heart were involved by the disease there were two zones specially liable to attack—namely, the circle of Willis and its branches, and the base of the aorta and the part immediately above it. Between the primary infection and the invasion of these structures the period seemed to be about the same in each—namely, from five to ten years. He did not share the view held by some that it was not until later in the life-history of the disease that these structures were implicated. These manifestations were seen in people of 25 to 30, rather than from 30 to 40 years of age. All sorts of syphilitic developments occurred later in life, aneurysm a little later, aortic regurgitation later still. The doctor should be on the scene before these late sequelæ developed.

*Symptoms of Early Involvement of the Aorta.*—These, said Sir Thomas Horder, were largely problematical, and he was anxious by collaboration to agree on signs which would stand the test of experience. He could never feel quite certain of his diagnosis of syphilitic aortitis, but he insisted that the safe course was to treat the patient as a syphilitic suspect. He attached great importance to substernal pain, which he could reasonably attribute to the aorta, which was a very sensitive structure in a young man or woman. This anginoid pain was liable to be increased by effort, but was not necessarily induced by effort. One of the cases which he considered had this disease was sent to him as severe cardiospasm, the pain having been attributed to acid dyspepsia in a nervous subject. The speaker was not satisfied about the character of the aortic second sound; there was a clear history of infection seven years previously, and his blood gave a trebly-positive Wassermann, the Sigma reaction also being very definite. Anti-syphilitic treatment with prolonged rest brought about a complete cure. Pain he regarded as very important.

Less helpful because more vague subjective features were the following. First, a sense of oppression and discomfort in the chest, increased by effort; what could be expressed as an "aortic consciousness" as opposed to a "heart consciousness." Secondly, there was shortness of breath, but the number of conditions in which this was present reduced its diagnostic value. Added to this was a feeling of general physical slackness, coupled with some anæmia. Early physical signs of syphilitic aortitis were problematical. In none of the kind of patients under consideration could he satisfy himself that the aorta was dilated, though he was aware it had been reported, especially by the French, whose clinical picture of aortitis was much more elaborate than ours. Syphilitic mesaortitis was a patchy condition; and if it were so diffuse as to lead to dilatation of the aorta in a man aged 30 or 40, it would be so serious that the examination of it would probably be made in the *post-mortem* room. There was something helpful in the character of the sounds in these cases. In all cases in which there was substernal pain an aortic second sound should be carefully criticised. He considered that a blurring or lack of clearness in this sound should be seriously regarded, and it should be listened for also down the sternum and at the bottom of that bone. The late Sir William Osler spoke of the pulmonary base as "the area of auscultatory romance," but the speaker rather regarded this xiphoid region as the area of auscultatory neglect. Sometimes a definite and distinct aortic bruit could be heard there and nowhere else. A further suspicious feature was a sharply accentuated second sound in the absence of hyperpiesis, but he did not regard this as of equal importance to the last named. Collateral signs of syphilis were also very valuable, but they were not looked for unless the possibility of syphilis was in the examiner's mind. He referred to such conditions as leucoplakia, old scars, pigmentations, &c. And in a suspicious case the complement-fixation test would be tried. He did not regard the presence of an aortic diastolic bruit as a proof of permanent aortic incompetence.

*Early involvement of the heart* by syphilis was detected less commonly than in the case of syphilis of the aorta, partly because the important guide, pain, was absent in the heart cases. In hearts affected by syphilis there might be a sudden rupture of an aneurysm in the heart wall, or the production of an ischæmic infarct might result from endarteritis of branches of the coronary vessels. In regard to the heart in this connexion, he knew of only one suggestive feature—namely, the so-called heart-block syndrome. If that were present in any degree in a person under 50 there was always the hope that his syphilitic disease would respond to treatment.

*Treatment.*—On the subject of treatment Sir Thomas Horder said he had not much to offer. When it was proposed to treat a vascular lesion of supposed syphilitic origin he was often asked whether one should proceed slowly and vary the usual routine. The practice was to proceed with caution, though he was not aware of any real reason for doing so. Certainly there was great need to proceed as intensively as possible, short of inviting disaster. He had seen neo-kharsivan and such remedies given with much boldness, and had shivered for the result, but his anxiety had proved to have been misplaced. His own aim in these cases was to be very intensive and very prompt with mercury, giving iodide of potassium at the same time, and following this up by a routine series of doses of novarsenobillon, &c. Once having started treatment, he did *not* give these cases any smaller doses than he gave to any other syphilitic patients. He believed greatly in prolonged rest in the recumbent posture before starting therapeutic treatment.

### *Syphilitic Endocarditis.*

Dr. F. W. PRICE, who followed, dealt with the acquired form of the disease in the heart and aorta. Syphilis, he said, might attack the aorta, the cardiac valves, the coronary arteries, the myocardium, and the pericardium. Inflammation of the media of the vessels might be followed by necrosis of the elastic tissue and muscle-fibres, and, at a later period, by a new formation of fibrous tissue, thus bringing about a local weakening of the vessel, leading to aneurysm of almost any size. The thickening of the intima was a secondary protective or compensatory process. Fatty and calcareous degeneration was *not* present in the early stage of the disease. Secondary thickening of the intima had been erroneously confused with atheroma. The auriculo-ventricular bundle might be involved in the disease and cause heart-block. Syphilis of the pericardium was very rare. A histological diagnosis was very difficult, even in the early stage. He did not believe syphilis caused primary atheroma, but it was responsible for a large proportion of cases of aortic incompetence, and was an important factor in angina pectoris in patients under 40 years of age. Still, in the main, he considered that the part played by syphilis in the causation of diseases of the heart was over-stated. Dr. Price dealt fully with the symptoms and clinical signs of the disease in heart and aorta, and in the main agreed with Sir Thomas Horder. The prognosis, he said, depended largely on the stage at which the diagnosis was made, and on the kind of treatment adopted. Taking cases as a whole the prognosis was very unfavourable, perhaps largely because usually the diagnosis was not made until a late stage of the disease. The hope was that this defect would be increasingly remedied. In the absence of aortic incompetence the prognosis was more favourable. Prompt treatment sometimes prevented the more serious sequelæ. He agreed as to the great value of prolonged rest, and he did not regard signs of cardiac failure as a contra-indication to antisyphilitic treatment.

### *Discussion.*

The President agreed that, in the face of a positive diagnosis, there was no reason why cases of the kind being discussed should not be treated actively, especially as damage to heart and vessel walls was such a serious matter. He also referred to the diagnostic value of the provocative dose.

Dr. Strickland Goodall spoke of an experience of 220 cases of cardiovascular syphilis. When the myocardium was involved the signs produced depended on the part of that structure chiefly affected. If chiefly the auricle was damaged, auricular fibrillation was not uncommon; 14 of the 220 cases showed this. When the bundle of His was involved heart-block, either partial or complete, was produced. The electrocardiograph was very valuable in the diagnosis of myocarditis. In his 220 cases syphilitic pericarditis was present in only four. He was glad to hear Dr. Price say that in syphilitic aortic regurgitation there was not much ventricular hypertrophy, as it was a very important means of differentiation from other forms. He was glad also to hear of the faith still persisting in mercury and iodide of potassium.

Colonel L. W. Harrison said it was evident that by the time the physician was able to detect syphilis of the aorta or of the myocardium much damage had already been wrought by the disease. In the primary lesion the outstanding fact was the disease of blood-vessels, and the resultant fibrosis was the great enemy. Early treatment was directed to forestalling this crippling fibrosis. A statement frequently made was that it was unnecessary to treat a patient because of a persistently positive Wassermann if there were no symptoms, but the latency of cardiovascular syphilis and the difficulty of diagnosing it until serious damage had been done was a sufficient answer to those who took that attitude. With regard to treatment there was much difference of opinion as to the use of arsenical preparations, particularly in myocarditis, but he thought the arsenobenzol treatment had a definite place in the treatment of both myocarditis and aneurysm, though in the first of these care must be exercised. If small doses were commenced with and slowly increased there would be very little shock.

Sir Thomas Horder and Dr. Price replied.

Errata.—Dr. Knyvett Gordon points out that in the report of his remarks made at the discussion at the Medical Society of London on cholecystitis and published in The Lancet of Feb. 27th, p. 442, the words "Histological examination of the blood was of some value in the diagnosis *of gall-stones*" should have read "*of cholecystitis*," and "*the diastatic content of the urine* was also important" should have read "*the diastatic contents of the blood and urine.*"

## Reviews and Notices of Books.

### THE YOUNG DELINQUENT.

By Cyril Burt, M.A., D.Sc. Oxon., Professor of Education in the University of London; Psychologist in the Education Department of the London County Council. London: University of London Press, Ltd. 1925. Pp. 643. 17*s.* 6*d.*

Dr. Burt's position as an authoritative exponent of the psychology of childhood is already well established. This book, the first of a series of three dealing with mental abnormalities in the child, while nominally concerned only with the juvenile delinquent, might well serve as a text-book of psychology in general. The parts respectively played by intelligence, instincts, sentiments, and complexes in the determination of conduct are lucidly outlined and their abnormal developments illustrated by concrete cases of delinquency. From a psychological standpoint the book is more systematic than Dr. William Healy's Individual Delinquent, the only other comparable book on the subject, and one which has had much influence in America in stimulating the movement for the psychological examination of all delinquents. Dr. Healy's own work in Chicago and Boston soon found followers, and psychiatric clinics are now a recognised institution. In England it is still necessary to plead for them, and Dr. Burt's book may be regarded as an argument in their favour. In an appendix he describes the equipment necessary for such a clinic.

The work is an expression of the modern attitude to crime and the criminal. It is not so long since the criminal was looked upon as a degenerate human type, mentally and morally separated by a deep gulf from average humanity; he was born to crime and yet, by a curious paradox, regarded, if sane, by the law as responsible for his acts and a fit subject for punishment. In this book the criminal is seen as being of like passions with ourselves; the fundamental point of view is that "crime is a mental symptom with a mental origin," an origin usually multiple, and that until the origin is discovered there is no basis for suitable treatment, which must be primarily remedial and only secondarily punitive, the punishment fitting the criminal rather than the crime. In a series of fascinating chapters the author discusses, on the basis of observations of a large group of delinquents and a corresponding group of controls, the various causes he has discovered—hereditary, environmental, physical, intellectual, and temperamental—distinguishing also the most essential factor in each case from the less important contributory ones. The analysis is searching; the individual cases quoted give some idea of the care exercised in collecting and collating facts, in reaching a diagnosis and suggesting appropriate treatment. The readiness of magistrates to attribute all crime to picture-houses and pernicious literature might be effectively curbed by a perusal of the book; it might induce also an appropriate diffidence in dealing with such cases.

The rôle of heredity has, in Dr. Burt's opinion, been much exaggerated. "Contagion," he remarks, "is too often mistaken for heredity," and "the case of sporadic crime is more usual than the case with a criminal lineage." In between 60 and 65 per cent. of his cases the delinquencies were precipitated primarily by the difficulties of the environment or by personal history. In this connexion he has much to say of home discipline, and he points out the great difficulty an investigator has in obtaining a clear understanding of the home atmosphere, the emotional relations of its members to one another, and their reactions upon each other—factors often of supreme moment in delinquent cases. Sometimes, he adds, the offender is the most normal member of his group. But, whatever the external conditions that act upon the criminal, it is the reaction of his own mind to the conditions that determines the result; mental factors and particularly emotional factors count most.

Dr. Burt here reiterates his frequently-expressed opinion that the "moral imbecile" of the Mental Deficiency Act represents no true psychological entity, and pleads for the legal recognition of the "temperamentally defective." Expert opinion will now in the main agree with him. Treatment is discussed at very considerable length and with system. It should obviously begin early, before the habit of crime is established, must be adapted to the individual child, and also to the nature of the causes that provoked the crime. Special institutions designed for children of unstable constitution are urgently required.

This is a book to be read and re-read, and retained for reference by all interested in the moral welfare of young people.

### INHERITANCE OF CANCER

*Our Present Knowledge of Heredity.* Six Lectures under the Mayo Foundation, by W. E. CASTLE, C. E. MCCLUNG, J. A. DETLEFSEN, MAUD SLYE, H. G. WELLS, and M. F. GUYER. London and Philadelphia: W. B. Saunders Company. 1925. Pp. 250. 12*s*.

OF books on heredity there is no end, and these lectures given at various American universities under the auspices of the Mayo Foundation for Medical Education and Research would seem to be hardly worth a permanent presentation to medical men were it not for the inclusion among them of a statement by Miss Slye of the splendid mouse-breeding experiment which she has carried on at Chicago with such devotion for many years, and of a singularly comprehensive account of the inheritance of cancer from all its aspects by Prof. H. Gideon Wells, which incidentally has already appeared in the *Journal of the American Medical Association*.[1] The question whether cancer is heritable is one which disturbs the lay public more than it does the profession, who have settled that the practical importance of a cancerous ancestry is, to all appearances, negligible in man. Miss Slye concludes quite definitely—and supports her conclusion by the largest mass of accurate data which have ever been collected on the subject—that resistance to cancer is a unit character which is transmitted as a straightforward Mendelian dominant. Similarly the tendency to develop cancer is a unit Mendelian recessive which explains why it may remain hidden through several generations until the chance mating of the appropriate heterozygotes brings it out in a proportion of the children. Whether cancer actually develops or not in a homozygous recessive depends on the stimulus which the tissues receive. Taking as illustrative the example with which we are now familiar, the occurrence of cancer is the product of the heritable qualities of an organ in respect of cancer resistance and the irritation which it receives from outside. Miss Slye, by deliberate breeding, has produced strains of mice which nearly never or nearly always develop malignant tumours under the conditions of life which prevail in her mouse town. What happens when these two strains are, e.g., painted with tar seems to be unknown, but it has been ascertained that the children of rats in which cancer develops in relation to the liver cysts of *Tænia crassicollis* are much more prone than usual to respond in the same way to the presence of the parasite; in other words, the readiness with which irritation will cause cancer is shown to be heritable. The difficulty which arises from this relationship between inherited tendency and irritation is that it is hardly possible to regard the tendency as a single unit character if it is so variable, and Miss Slye frankly allows that some animals have it to a greater and some to a lesser degree and will require less and more irritation respectively to produce a frank cancer. Her main position is, however, not seriously affected if several factors are involved, and her account of her results deserves careful and attentive study by everyone who is interested in the third largest cause of death in this country. Prof. Wells's lecture covers a wider field, and gives an account of such human experience as is seriously germane to the question and of the results, homologous and analogous, of other investigators. His conclusion is that inherited tendency is one of the most important factors which determine the occurrence of malignant tumours. The last of the six lectures is on "eugenics," by Prof. Guyer; he does not venture to state what practical application should be made of Miss Slye's results. The truth probably is that something could be done if people felt keenly enough about it; and that it would not amount to very much. If the tendency to have cancer is a recessive character, most of the people who have it do not show any signs of it in their own persons; they cannot be killed, segregated, or even disliked, and indeed nothing may be known to their discredit till, long after they are dead, some of their children develop cancer. On the other hand, if Miss Slye and Prof. Wells are right, deliberately and productively to marry the child of cancerous parents is looking for trouble. As with mental deficiency, another Mendelian recessive, such selective breeding as is possible would have an effect, but it would not be large and would take a long time to show.

### DISEASES OF THE GUMS AND ORAL MUCOUS MEMBRANE.

Second edition. By Sir KENNETH GOADBY, K.B.E., Lecturer on Bacteriology of the Mouth, Dental Department, University College Hospital. London: Humphrey Milford, Oxford University Press. 1925. Pp. 408. 42*s*.

THE peculiar virtue of this book is that it is equally satisfying to the doctor and dentist. The former will find an adequate account of the pathology of what may be called the special dental diseases, not too technical though by no means superficial. To the latter the book is welcome for the account it gives of those rarer manifestations of disease in the mouth, the study of which hardly falls within the dental curriculum. The significance of dental disease in relation to the general health receives a detailed consideration, and the bacteriology of the mouth is clearly described. The general plan of the book has undergone no change, but certain additions have been made, notably a chapter on vaccine therapy and a section treating of the toxic heart in relation to dental sepsis. The method of injecting vaccines into the diseased area as advocated by Besredka is not mentioned, though it has received a wide publicity through its application to pyorrhœa by Goldenburg. It is surprising to find only a cursory reference to the root tumours so often found at the apices of dead teeth, for in the opinion of many observers this closed type of sepsis may be more harmful to the general health than the open lesions of pyorrhœa. The author apparently regards them as a form of chronic alveolar abscess, but their structure does not wholly support this view. Their pathology is admittedly obscure. It is quite possible that the radiographic appearance of apical rarefaction has received too great attention and may not warrant the sinister interpretation often placed upon it. A more detailed study of this aspect of dental infection both in regard to its bacteriology and its relation to systemic infection would be a valuable addition to the next edition of this work. No reference is made to the work of A. F. Hurst on achlorhydria and its bearing on pyorrhœa and systemic infection. Hurst's views, though still hypothetical, have so much clinical support that it becomes necessary to consider them in any account of dental disease as a factor in general disease. It is just in a book of this kind which is widely read both by the medical and dental professions that a full-dress study of focal infection in the mouth in relation to general disease would be specially valuable. The chapters on the special diseases of the mouth and gums, with excellent coloured plates, and on diseases with oral symptoms still remain the best sections of an admirable book.

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[1] Jour. Amer. Med. Assoc., 1923, lxxxi., 1017, 1103.

SCOLIOSIS.

Rotary Lateral Curvature of the Spine. By SAMUEL KLEINBERG, M.D., F.A.C.S., Assistant Surgeon, New York Hospital for Ruptured and Crippled; Member of the American Orthopedic Association. New York: Paul B. Hoeber, Inc. 1926. With 140 illustrations. Pp. xvi. + 311. $6.

IT seems that with the best will in the world it is difficult to find anything new to say on this subject. Dr. Kleinberg has had good opportunities, of which he has well availed himself, of studying and treating scoliosis, and he has produced a sumptuous book, but he is able to bring forward little or nothing new on the pathology, ætiology, or treatment of this deformity, which in its worse forms is so distressing and so resistant to treatment. However, to those who would have in concise form a statement of what is known of this deformity and what measures can or should be taken to combat it, we recommend this book, which is illustrated by figures of great technical beauty and clarity. Dr. Kleinberg holds out no extravagant hopes of cure of structural scoliosis with bone deformity and his views on prognosis are sound and trustworthy.

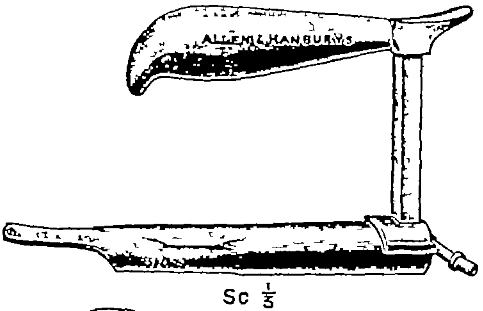
## JOURNALS.

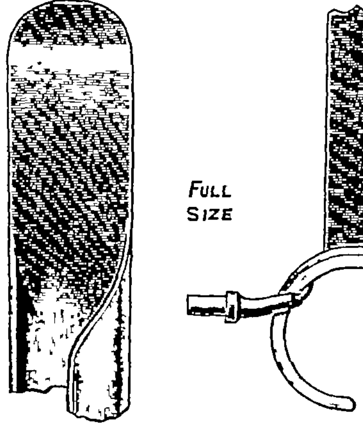
BRITISH JOURNAL OF OPHTHALMOLOGY. February, 1926.—This number contains two papers of clinical and pathological interest. The first is on Inflammatory Pseudo-tumours of the Orbit, by F. A. Williamson-Noble. Two examples of this somewhat uncommon condition are described, and also a third in which a blind eye was excised for a supposed intra-ocular tumour but in which no true tumour was discovered. In the first case, in which the proptosis was well marked but the vision good (6/12), the orbit was exenterated in the belief that a neoplasm was present. The condition found was a large gummatous mass surrounding the optic nerve within the muscular cone. This case should be compared with one reported by Mr. Lindsay Rea in which the proptosis was binocular but the Wassermann reaction positive, and which yielded to energetic antisyphilitic treatment.[1] In Mr. Williamson-Noble's second case the proptosis was also binocular, but in one eye became so marked that the probability of malignancy seemed so great that exenteration of the orbit was performed. Nothing was found except lymphocytic proliferation. It is suggested that the condition was due originally to infection by the blood stream from some distant focus, and that after the infection had subsided a mass of lymphocytes were left which continued to proliferate. (Mr. Richardson Cross published a binocular case in 1916 which he attributed to lymphoma.) In Mr. Williamson-Noble's third case there was no actual proptosis, but there was a condition found which, if left, would probably have caused proptosis. As a result of irritation induced by cholesterin crystals derived from an old intra-ocular hæmorrhage in an old blind eye, a small mass of young connective tissue was found outside the sclera after the eye had been excised. This is noted as a third possible explanation to account for some of these obscure cases of proptosis. Their clinical importance is great. No more difficult problem for the ophthalmic surgeon arises than whether or not to advise the sacrifice of an eye which retains useful vision on the ground of the possible but unproved presence of a malignant tumour.—The second paper is by J. A. Conway on Two Cases of Cerebral Aneurysm causing Ocular Symptoms, with Notes of other Cases. Aneurysm of a cerebral artery is seldom diagnosed but, it seems, is not so very rarely discovered on the post-mortem table. In the first case there was bitemporal hemianopia with some expansion of the sella turcica according to the X ray report, both symptoms pointing to the possibility of a pituitary tumour. Post mortem an aneurysm attached to the right middle cerebral artery was discovered. The aneurysm was old and completely filled with laminated clot. It occupied the sella, whilst the pituitary, normal in size and appearance, was lying behind it. An interesting point about this case is that before death the fields of vision which at one time had been hemianopic had almost recovered their normal size. Presumably this was due to the shrinking of the mass. In the second case an aneurysm occupied a considerable part of the cerebellum and caused optic neuritis so that a cerebellar tumour was simulated. With regard to the causation of these cerebral aneurysms Conway finds that in the majority of cases no sign of vascular or cardiac disease has been discovered, and concludes with Turnbull that in these cases the formation of a breach in the media is due to an inborn defect in the arterial wall.

# New Inventions.

## AN IMPROVED LARYNGOSCOPE FOR ANÆSTHETISTS.

THE laryngoscope here illustrated, although conforming in general outline to other similar patterns, embodies certain features which have proved useful in passing catheters and their accompanying expiratory tubes through the larynx. These are: (1) efficient illumination from a lens-fronted electric bulb of the size usual in sigmoidoscopes; (2) the distal end of the speculum is flat, wide, and tilted slightly upwards—an advantage in elevating and controlling the epiglottis; (3) the unusual width of the slot at the side facilitates the passing of catheters and tubes for expiration without obscuring the visual field; (4) the lug at the proximal end of the handle affords a purchase for the thumb, which is of value in manipulating the instrument into position. The handle is not detachable, and the barrel, which is polished within as well as without, is constructed of stainless steel.





The instrument is supplied by Messrs. Allen and Hanburys, Ltd., of Wigmore-street, W. 1, and also by Messrs. Down Bros., of St. Thomas's-street, S.E. 1.

I. W. MAGILL, M.B., B.Ch. Belf.

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[1] THE LANCET, 1925, ii., 503.

**W. H. B T.**
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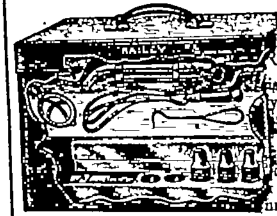

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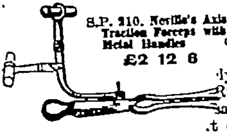

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properly been given priority as the medical benefit under the Act has suffered throughout from limitations imposed by financial considerations and stated by the Commission to call urgently for removal. It would seem that, owing to the fact that sickness has cost less than was originally anticipated, there is a margin available out of present contributions, and the Commission expressly recommends that this margin should be applied to its full extent towards meeting the cost of extending the statutory benefits. The medical profession, as made clear by their evidence, are ready to coöperate with the Government in bringing into operation the extension of the scope of medical benefit which is contemplated. This extended service is not to be provided by way of development of the out-patient work of the hospitals, but through an independent scheme organised under the direction of the Ministry of Health through the whole country by the insurance committees or their successors as an integral part of medical benefit. Provision in the scheme should, it is recommended, be made for the closest coöperation between the general practitioners and the specialists, particularly for the exchange of information as to cases, and for the giving of definite guidance to the general practitioner as to both diagnosis and treatment. Any practitioner possessing the requisite qualifications should be entitled to take part in the work, and the decision as to whether particular practitioners possess these qualifications would lie in the hands of a mixed lay and medical committee for each area. It will be observed with interest that ophthalmic benefit would be recognised as part of the expert out-patient service under the scheme, and would be available only on the recommendation of the general practitioner. The second recommendation in order of priority is for the provision of allowances in respect of dependants of insured persons in receipt of sickness or disablement benefit. This takes the form of a small addition to the worker's own sick benefit, and must not be confused with any extension of medical benefit to dependants, which, as we some time ago indicated, is not in the region of practical politics. There will be general agreement with the next recommendation that there should be an improved provision at the time of pregnancy and childbirth for insured women and the wives of insured men. As soon as funds are available, the scope of maternity benefit should, it is said, be expanded to cover medical and midwifery services in addition to a cash payment; the service element should then be administered by the local health authorities and coördinated with the other local medical services, and a cash element would be retained and be administered in connexion with other cash benefits.

The Commission gives its blessing to a complete dental service available to the whole insured population as an eminently desirable addition to the insurance scheme, and our readers will remember that there has throughout the evidence been an insistent demand for such a service and a readiness on the part of approved societies to anticipate future surpluses by ear-marking part of the contributions for a statutory dental benefit. This, however, has been found to be financially impracticable at present, and is placed fourth in order of priority. The existing arrangements whereby dental benefit is one of the additional benefits administered by the societies out of their
rpluses will continue, subject to an important pro-
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by them. In regard to the additional benefits generally, in spite of their unequal distribution and the lack of uniformity in their administration, it is not considered that there should be any change at the present time, but that the approved societies should continue as heretofore to administer these benefits. Some mitigation of the inequalities should, it is thought, be effected by the partial pooling of surpluses on lines indicated in the report. The approved society system stands firm for the present in regard to cash benefits generally, but it is foreshadowed that their position might have to be reconsidered in the event of fundamental changes being made in the system of social insurance. As was generally anticipated, it is recommended that insurance committees should be abolished, and their powers and duties transferred to committees of the appropriate local authorities, such committees to contain possibly a proportion of coöpted members; while a pious hope is expressed that regard should always be had, in any developments of the insurance medical service, to the importance of the fullest possible coördination with other health services. The general question of coördination, being a very wide one, is not unfairly regarded as outside the scope of this Commission's deliberations.

The principal recommendation which emerges—the extension of the scope of medical benefit—will, we hope, be capable of immediate realisation, and the Minister of Health may be expected, in closest consultation with the representatives of the profession, to give effect to this recommendation, and so make good what has always been recognised as a serious defect in the medical benefit provisions of the National Health Insurance Acts. So much we feel justified in anticipating.

## MORVAN'S DISEASE.

THE history of the disease, or more properly speaking the syndrome to which the name of MORVAN is attached, is a fine illustration of the advances in medical knowledge which may follow the astute observations of those engaged in general practice. It is proper that consulting physicians should acknowledge the debt that we all owe to such observers, and Prof. C. ACHARD, in the latest volume [1] of the Clinics of the Hôpital Beaujon, has seen fit to devote the first of an absorbing series of essays to the story of MORVAN'S discovery. In 1883 Dr. MORVAN, a general practitioner of Lannilis in Brittany, published an account of seven cases of which the outstanding clinical feature had been the occurrence of recurrent painless whitlows appearing on both hands. He stressed the symmetrical nature of the lesions, noted their occasional occurrence in the lower extremities, and formulated the hypothesis that the anatomical site of the primary disease lay in the cervical portion of the spinal cord. His observations had extended over a period of 30 years. The discovery was followed by isolated reports of similar examples of this phenomenon, and three years later, in a second memoir, MORVAN reported eight further cases, giving a description of the painless arthropathies sometimes accompanying the disease and of the scoliosis which was usually present. During the following three or four years the pathology of the disease remained entirely obscure; autopsies on cases had not been performed, or rather the rare autopsies had been conducted in circumstances which did not allow of immediate examination of the nervous tissues, and whilst some neurologists, by a process of deduction, held that syringomyelia was the essential cause of the disease, others, basing their views on the rare sections of nerves which had been seen, believed the disease to be of the nature of a peripheral neuritis. At last a complete post-mortem examination of a case of Morvan's disease, dying in the Salpêtrière, disclosed a typical state of syringomyelia, so that the majority of French neurologists, headed by CHARCOT, were convinced that this was but a clinical type of the latter malady. The interest of the lay public in France in matters concerning medicine and pathology is well illustrated by the fact that in 1893 MARCEL PRÉVOST published a novel entitled L'Automne d'une Femme, containing a full description of Morvan's disease and attributing its origin to syringomyelia. Meanwhile there remained certain adherents to the theory that neuritis rather than an intraspinal lesion was the primary disease. DEJERINE particularly clung to this, and drawing attention to the frequency of occurrence in a circumscribed area in Brittany, suggested the probability of an infective neuritis analogous to that seen in leprosy; but the controversy was rendered even more bitter by the intervention of ZAMBACO Pasha of Constantinople, an acknowledged authority on leprosy, who maintained that both Morvan's disease and syringomyelia were nothing more or less than manifestations of that dreaded infection. This opinion has not been upheld by subsequent experience; to-day it is agreed that the essential lesions of leprosy are found in the peripheral nerves, and that the excess of neuroglia with cavity formation in the cord is not found in that disease. And it is further held, by those best qualified to judge from a wide experience, that Morvan's disease is but a syndrome, whose painless whitlows are the expression of syringomyelia in nearly all cases, but that in rare cases leprosy affecting the peripheral nerves has been its cause.

## IRREGULAR MEDICAL PRACTICE.

ON Monday last Lord DAWSON OF PENN addressed a meeting of both Houses of Parliament on the subject of medical practice by the unqualified, and a summary of his words and of the discussion which arose thereon will be found in another column. Open debate free from animus between the public and the medical profession ought to make plain that scientific medicine is not afraid of competition, and various Members of both Houses of Parliament put questions to Lord DAWSON, the answers to which must have considerably cleared away general misunderstandings, and should lead to a wiser spirit of criticism. The acrimony which has marked recent strictures of the medical profession should cease to be displayed by reasonable people, appreciating that the policy of the profession is conducted by its members with the utmost desire for the public weal, and is regulated by Acts of Parliament having no other object.

Of all the lessons which Lord DAWSON was able to draw from his experience as clinician and teacher, none probably will be more useful to the public than his insistence that education and training along a standardised course must precede any attempt to solve the problems of medicine. This fact is not only made patent by the Medical Acts, where such a course is laid down as necessary for the equipment of all medical men in order that the public may be protected from the perils of untested pretensions, but it is recognised also within the course itself, where two-thirds of the time which is compulsorily expended in medical education and training is consumed in the acquisition by the students of fundamental scientific knowledge and comprehension of general principles, only a third of the curriculum being devoted to learning the methods of treatment in their application to the sick. This is only another way of stating the truism that while upon diagnosis depends all that is trustworthy in medical practice, the power of diagnosis can come only to those who have built their education upon sound foundations. The therapeutic developments of the present, with their remarkable promise, and the hard-won wisdom of the past, are stultified alike if the patient is not submitted to the general and particular scrutiny which those who have been fully trained can provide—and no others. Treatment must bulk most largely in the public eye; the patient desires to be treated and is not concerned in making inquiries into the academic equipment of his doctor. To a certain extent he can judge of treatment by its results, and to a certain extent he will be, and should be, influenced by the statements of doctors in regard to ability to deal with the condition. But it is a fact that many a condition appears to improve under very varying procedures, and the man without qualifications, one of what the Minister of Health termed "the irregular army," unable to produce any other evidence of his knowledge, must depend for public support mainly upon the assertion of his successes, and there is no scientific ground for approval of his methods and no real proof that they have been fortunate to the extent claimed. For these practitioners we have seen support claimed on the ground that they are concentrating their mental powers, whose sharpness, it is stated, has never been blunted by the accumulation of irrelevant knowledge, upon the one thing that matters—namely, treatment—and the public have lost sight of the fallacy in the argument, so much is treatment the thing with which they are concerned. Treatment can only be administered logically in proportion as the cause of the condition has been ascertained, and the only way to wrest from medical science the capacity for diagnosis is through submission to an arduous course of training. As Lord DAWSON said, "wonder-working short cuts" should be distrusted, and so should the independent diagnoses of those who are not properly equipped. The therapeutic methods of these may often be useful, but their diagnoses are simply dangerous.

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[1] Clinique Médicale de l'Hôpital Beaujon, Second Series. Paris: Masson. Pp. 336. Fr.24.

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**JAMES MACKENZIE INSTITUTE FOR CLINICAL RESEARCH.**—The Schick test was the subject of a paper by Dr. Matthew Fyfe, medical officer of health for St. Andrews and clinical pathologist to the Institute. After a reference to the incidence and death-rate of diphtheria and to the expenditure incurred by isolation and treatment, Dr. Fyfe gave a description of the Schick test. By its use during an epidemic it was possible to detect susceptible contacts who could then be temporarily immunised by antitoxin. When time permitted toxoid antitoxin could be employed to produce a more lasting immunity. He described the passive immunity, apparently derived from the mother, of newborn infants, the gradual loss of this in the first two years of life, and the gradual development of acquired immunity after puberty, and emphasised the high incidence and death-rate of diphtheria from the second to the tenth years of life. The value of the Schick test as a check on vague bacteriological reports and as an aid in the identification of carriers was illustrated, and its simplicity, cheapness, and safety were emphasised. In conclusion, Dr. Fyfe referred to the results of immunisation of Schick-positive subjects in Great Britain and elsewhere. He looked forward to a time when by a general adoption of these methods diphtheria would be banished from the list of common diseases dangerous to life.

# Annotations.

"Ne quid nimis."

## THE POLLUTION OF STREAMS.

To a recent number of the "Public Health Reports,"[1] issued weekly by the United States Public Health Service, Surgeon W. H. Frost contributed an interesting review of the work done by the service on stream pollution. The first systematic research on the effects of sewage pollution in a large area was made in 1910 by Surgeon A. J. McLaughlin; but it was not until 1913 that the services of engineers, chemists, biologists, and bacteriologists were enlisted in carrying out a concerted plan of investigation. Between that year and 1917, when America entered the war, a good deal of work was undertaken, notably on the biochemistry of sewage, the treatment of industrial waste, and the effects of natural purification in inland and tidal rivers. In 1920 the undertaking was resumed, and a survey was made of municipal methods of sewage disposal and of arrangements for water purification in a number of cities on the Ohio River and elsewhere. The object of this last investigation was mainly to ascertain the exact relations between pollution of raw water and the quality of effluent obtained under varying processes and conditions of treatment. In addition to this a good deal of laboratory work has been done during the last few years. In Cincinnati various investigations have been made, including an attempt—so far not very successful—to reproduce on a small scale the phenomena of bacterial purification as they are seen in small streams. The biological oxygen demand of sewage, of industrial waste, and of polluted river waters has been studied carefully, and experimental research on the relation of pollution to the quality of effluent has been carried out in extension of the field work done on the efficiency of municipal filter plant; experimental sand filtration plant was designed so that the conditions of loading and of operation could be varied at will through a wide range. Research on the phenomena of bacterial purification has incidentally involved rather extensive study of the biology of plankton, and other useful theoretical work has been done by Dr. William Mansfield Clark, of the Hygienic Laboratory, who has been working for several years on the physical chemistry of coagulation in so far as it bears on the purification of water. In a general review of the subject Surgeon Frost points out that the resources at present available are inadequate to cover the many fields of work which claim attention. Even now 85–90 per cent. of sewage in the United States is discharged without treatment into convenient streams; though, as he hints, there seems little justification for this state of affairs now that the best means of purifying sewage are fairly established. Surgeon Frost does not, however, consider that the risk of local authorities drawing their water from polluted streams justifies intervention by the public health service, for the purification methods at present known are capable of dealing with the pollution. In his forecast of future developments he seems, while he admits the complexity of the subject, to be employing the work and recommendations of our own Royal Commission on Sewage Disposal. It hardly appears that he is fully conversant with their results, for he remarks:

> "Unfortunately, sanitary science has not furnished such full and precise knowledge as will be required on any of these points, especially in regard to the natural agencies which tend so greatly and rapidly to reduce bacterial contamination and which constitute one of the main reliances for protection of health. Moreover, it seems unlikely that it will be possible to borrow this knowledge from the experience of other more densely populated countries, as the writer knows of no other country having similar problems in the control of stream pollution on a comparable scale and for a similar purpose; that will probably have to be studied successfully before a solution becomes necessary for some of the great river systems in the United States."

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[1] Public Health Reports, Jan. 15th, 1926, vol. xli., No. 3.

In making these comments he does not seem to have taken full account of the work of Boyce on the Severn and Houston on the Thames, or of the investigations of Adeney on oxidation, of McGowan on aeration tests, of Fowler, Ardern and Haworth on bio-aeration of sewage, or of the progress made by the Conservancy Boards during the last 30 years. Also he seems to have forgotten that the Royal Commission, having arrived tentatively at certain standards for sewage effluents, tested their practical value all over the country, in rivers with all degrees of pollution and dilution. The observations, it will be remembered, included topographical notes on apparent nuisance (smell, foul deposits, fungoid growths, and the like), and involved numerous chemical, biological, and bacteriological investigations. The West Riding Rivers Conservancy Board, although dealing almost exclusively with non-drinking water streams, has, during the last 30 years or more, contributed so much to the general store of knowledge of river pollution that all countries might well feel that their own problems were simplified, and other good spade-work has been done by the neighbouring Mersey and Irwell and Ribble Joint Committee Boards. Be that as it may, we fully appreciate the excellent work carried out by the Public Health Service of the United States. It has proved of signal value in connexion with our own pressing problems of pollution and purification, and will certainly be of like value in the future.

## CLEAN FOOD.

A joint committee of the Royal Sanitary Institute and the Society of Medical Officers of Health have just issued their report[1] on the question of food handling in this country. The method adopted by the committee was to depute the investigations of various branches of the subject to individual members of the committee, and the report now published contains an account of these individual investigations and the general conclusions of the committee thereon. The committee are greatly impressed by the fact that Great Britain alone among the more advanced nations has failed to take cognisance of the existence of risks to health from careless handling of food, and to provide legislation for the protection of the people from such risk. This fact is well brought out by the epitome of food legislation and regulations in other countries prepared by Dr. Francis J. Allan. The difficulties in the way of producing direct evidence of injury to health from the careless handling of food are emphasised, but there will be, we think, general agreement with the findings of the committee that there are sufficient grounds on the plea of cleanliness and decency, and probably of disease prevention, for devoting much greater attention to these matters. It may be true that the majority of the people are apathetic, but it is also true that there is an increasing body of public opinion which demands the exercise of greater care. The committee urge that all food premises should be registered with the local authority, and that no premises shall be occupied for any purpose connected with the preparation, storage, or sale of food until they have been so registered. The final report of the Departmental Committee on the Use of Preservatives is quoted in favour of further control of methods of food preparation. Some progress has been made with regard to milk, and the meat regulations which came into force on April 1st, 1925, have already raised the standard of meat purveying. There is much greater reason, however, for regulations with regard to other foods, especially those which are consumed uncooked, than there was in the case of meat. The efforts made in America to eliminate from the food trade persons who are capable of carrying diseases are quoted with approval in the report. The joint committee placed their views before the Minister of Health on Nov. 16th, 1925, the procedure which they recommend being first of all registration, and in the second place regulation. It is suggested that one set of regulations might deal with principles of common application to most foodstuffs and that separate regulations might be made for special foods. The committee recommend that local authorities should have power to make by-laws subject to the approval of the central authority, and that the central authority should issue model by-laws for the guidance of local authorities. This question of care in the handling of food is intimately connected with that of the use of preservatives and the enlightenment of the public as to what they are purchasing. We have hitherto depended far too much upon the principle of *caveat emptor*. As the report points out again and again, education of the public and of the trades concerned is a necessary preliminary to progress.

## SOCIAL HYGIENE: THE IMPERIAL ASPECT.

Recent reports by Government officials and representatives of voluntary organisations go to show that the problem of venereal disease within the Empire is a very serious one which has been largely left untouched. Thus the Mandates Commission of the League of Nations has recently drawn attention to the prevalence and apparent increase of venereal disease among the native populations of the African Mandated Territories. The East African Commission has pointed out that everywhere in that part of the world the infantile mortality-rate is grievously high, "being due mainly to venereal disease, ignorance of child welfare, and tribal customs." In the district of Bunyore, in Uganda, for example, it is estimated that practically the whole population is syphilitic. In the Wood report on conditions in the West Indies it is stated that venereal diseases are rife and that very little headway has yet been made against their further spread, while in many of our Far Eastern possessions and colonial seaports the prevalence of venereal disease is a matter of grave concern to the medical services of the navy and mercantile marine. In certain places the solution of the problem is largely bound up with the provision of an adequate medical service. In Nyasaland, for example, the total European medical staff amounts to 14, which leaves a working total of 10 or 11, and these have to deal with a native population of nearly two millions. The principal medical officer of the Tanganyika Territory estimates that less than one-twenty-fifth of the population is within the sphere of medical influence. The problem of providing an adequate medical service appears to be largely a financial one, and under the scheme for the East African Development Loan, shortly to come before Parliament, it is recommended that a certain proportion be allocated for the medical services. Unfortunately, it appears from certain official pronouncements that this may all be used for endowing certain institutions for scientific research. With regard to venereal disease, enough is known to permit of very satisfactory measures of diagnosis and treatment, and it is adequate medical services rather than further research which is necessary if this Empire problem is to be solved. That this is so is shown in the case of Uganda, where, five years ago, the population was falling, largely owing to the prevalence of venereal disease. With increased expenditure in general health measures, including £22,000 for antivenereal work in 1923, this fall has been checked and the health of the tribes in the area has been sensibly improved. The spread of venereal disease in Hong-Kong and Singapore has been brought under control to a certain extent by the comparatively recent provision of facilities for free treatment, but it also appears necessary that all known centres of prostitution should be eliminated. In many of the ports of the China station, according to Surgeon-Commander T. B. Shaw, speaking at the Imperial Social Hygiene Congress at Wembley, promiscuous sexual intercourse is "made more easy by the presence of regulated or tolerated brothels." Thus the venereal disease problem in the Empire affects not only the native populations but also visiting members of the navy and mercantile marine. From the economic point of view the virility and efficiency of the native races is of prime importance to the development and maintenance of the Empire, while the dangers of prevalent disease among a shifting population as represented by seamen is too obvious to require emphasis. From a financial point of view, again, to put it no higher, any expenditure on combating venereal disease within the Empire will certainly be money well spent.

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[1] From the Secretary, Royal Sanitary Institute, 90, Buckingham Palace-road, London, S.W. 1. 2s.

## BURNS FROM A NEW POINT OF VIEW.[1]

THIS is not a disquisition on a painful group of injuries, but a study of Scotland's greatest poet—a reprint of a series of articles originally published in the *Glasgow Herald* with the object of rehabilitating the memory of Burns which, according to Sir James Crichton Browne, has been smirched by his biographers. The popular estimate of Burns is that he was a genius from peasant stock who wrote lyrics of surpassing beauty but who died at the early age of 37 worn out by drink and debauchery. The former portion of the estimate is true, but the latter portion, according to Burns's latest learned biographer, is entirely erroneous and is mainly due to the life written by Currie, "the arch calumniator," who was a fanatical teetotaller and could not forgive Burns's frequent allusions to wine and women, nor his somewhat latitudinarian views on religion. No doubt the popular estimate of Burns as a drink-sodden debauchee is wrong, but we think that Sir James Crichton-Browne makes too little of his failings, which failings he certainly did not minimise himself. The author considers that Burns's death was due to an exacerbation of the chronic endocarditis from which he had probably suffered from his early days, but even he allows that "an injudicious use of alcohol may have hastened its progress." Many people in the eighteenth century drank too much, and it is not surprising if Burns did so also, but the many allusions to drink in his verse and letters do not necessarily mean that he was a drunkard, any more than the similar passages in Anacreon or Herrick mean that they exceeded. Burns is, anyhow, too firmly enshrined in the hearts of millions to have his fame diminished by the failures and irregularities which are common to all of us, and, more especially, it seems, to the creative artist.

## HEALTH OF THE U.S. NAVY AND ARMY IN 1924.

THERE were 119,000 men in the Navy of the United States in 1924—the total figure is not definitely stated but can be arrived at from percentages which are based upon figures. This force had, per 1000, 496 admissions for disease, 61 for accident, 557 in all. The death-rates were, for disease, 1·78, for accident, 2·39, total 4·18. The most frequent cause for admission was gonorrhœa, with tonsillitis second. Tubercle caused 237 admissions, more cases than there were in the smaller British Navy in 1922, the last year of which we have yet been told, but fewer per 1000, 2·00 against 2·26. Dysentery cases are divided, as they should be, into bacillary (1·15 per 1000), and amœbic (0·31), in all 1·46. Stress is being definitely laid on keeping personnel fit and preventing invaliding. There are 824 medical officers, which is 1 to 144 personnel, but there is no statement of the number of associated civilians for whom they have also to care, such as is given for the Army.

In the Army of the United States in 1924 there were 136,485 men, and the Medical Department had under its charge another 75,000 civilians, as well as many pensioners. In the Army there were, per 1000, 335 admissions for disease, 121 for injury, 456 in all. The deaths were, from disease, 1·94, from injury, 1·89, in all 3·83. The chief causes of death were, in order, suicide, tuberculosis, automobiles, and airplane accidents. These last are becoming less frequent, and the flying hours per death have increased in four years from 955 to 3365. The leading cause of non-effectiveness was venereal disease, but the rate has been reduced by two thirds since 1908 when the preventive campaign was inaugurated. The Army daily appreciates more highly the work of the Dental Corps. It is the Veterinary Corps, a corps within the Army Medical Department, that examines meat, dairy products, &c., before acceptance. This inspection, saving the Army from buying bad food and forage, is thought to prevent a waste of money annually greater than the whole cost of the Veterinary Corps, which thus, it is supposed, pays for itself on a side issue.

The Surgeons-General of the Army and Navy of the United States follow a commendable routine in publishing simultaneously the statistical data of the year within a twelvemonth of its expiry. Their reports are abstracted in the *Military Surgeon* for January on which we have here drawn. Both services have increased their medical personnel by accepting on graduation senior medical students, who join the service hospitals as interns on the full pay of first lieutenants. They have the opportunity a year later, if approved, of joining their service, and in fact many of them do so.

## SPECIFIC FACTORS AND ANTITOXIN PRODUCTION.

IN the effort to produce therapeutic antitoxins of high specific value two lines of approach to the problem are open. On the one hand, we have the attempts, which are constantly made, to find types of antigen especially suitable for this purpose, and to ascertain the route, dose, and time of injection which will yield the most favourable results. On the other hand are the endeavours to modify the wholly unknown mechanism by which antitoxins are produced and to augment the output. Such endeavours have been, as a rule, empirical, although sometimes successful, and G. Ramon[1] has recorded the most recent of these. His attention was arrested by the fact that amongst a series of animals used for the production of diphtheria antitoxin, the concentration of this did not in all cases fall off after the bleedings had been initiated. As a rule the curve of antitoxin concentration in the animal's blood, having reached its highest point, thereafter progressively falls. In some cases Ramon found the fall to be checked and an augmentation to occur which occasionally was considerable. Investigating the matter further he found that the animals which behaved in this way were the ones which developed abscesses at the site of inoculation due to skin infection. He further was able to show that such augmentation in the antitoxic value of the animal's serum only occurred when the abscess was at the site of inoculation of the serum and not if it were elsewhere. Moreover, a quasi-chronic infection was more effective than an acute one associated with much constitutional disturbance. The investigator proceeded to reproduce the natural phenomenon experimentally in the endeavour to achieve a useful increase in the antitoxin of his sera and, after essaying various non-bacterial irritants, he found that starch, in the form of semolina, introduced along with the toxin or anatoxin with which the animal was injected, produced a local inflammatory reaction of the type desired. In experiments which are quoted upon diphtheria antitoxin production, the horses subjected to this procedure gave a yield of toxin which was approximately double that of animals hyper-immunised in the usual way, whilst in the case of tetanus the antitoxin yield by the new technique was as much as ten times that obtained from control animals. These observations are of importance as well as of practical interest to those engaged in the commercial production of antitoxin, whilst on the other hand they may be extended to throw some light upon the obscure question of the mechanism of the process.

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[1] By Sir James Crichton Browne. London: Hodder and Stoughton. 1926. Pp. 92. 2s. 6d.

[1] Annales de l'Institut Pasteur, vol. xl., No. 1, January, 1926.

## NEW PENSIONS REGULATIONS.

THE National Health Insurance Joint Committee, in conjunction with the Treasury, have published draft regulations which, although they do not take effect until 1928, are of immediate interest to large numbers who may contemplate becoming voluntary contributors under the combined scheme of health insurance and contributory pensions. The persons mainly concerned are those engaged in certain "excepted employments" under the Crown, public authorities, railway companies, &c., who pay contributions at a reduced rate for widows' and orphans' pensions only or who would pay these contributions if their remuneration did not exceed £250 a year. They are not insured for old age pensions under the Contributory Pensions Act, because they are already provided for in this respect by the terms of their employment, and they cannot qualify for these pensions in addition to their superannuation allowances by becoming voluntary contributors (if qualified), or taking up insurable employment, except so far as may be provided by regulation. The effect of the regulations now published is to enable those who are under 45 on becoming voluntary contributors or employed contributors, and also those who have already been insured under the health insurance scheme from some date prior to the passing of the Pensions Act, to qualify on the usual terms for pensions at 65 at the full rate of 10*s.* a week. As to the remainder, the rate of pension payable, if and when they retire on superannuation will be scaled down according to their age at last entry into full insurance —viz., 9*s.* a week where the age was 45 or 46 at entry, 8*s.* where the age was 47 or 48, and so on, down to 2*s.* where the age was 59; and where the person was 60 or over at entry no old age pension will be payable. Persons who have already retired from employment of the kind mentioned above will be subject to the same regulations. Somewhat similar provisions will apply to exempt persons over 45 who surrender their exemption certificates and become insured, as well as to men over 45 who become voluntary contributors on the ground of previous employment if they held exemption certificates when employed.

## STATUS LYMPHATICUS: AN INVESTIGATION.

AUTHORITIES have long differed on the importance, the frequency, and even the existence of status lymphaticus, and the Medical Research Council and the Pathological Society of Great Britain and Ireland may count on the willing coöperation of the profession in their attempt to throw light on the subject. Such an attempt is not, of course, new. An investigation was begun in 1914 but the work was interrupted by the war, and the death of the organiser, Prof. Emrys Roberts of Cardiff, was a further blow to the undertaking. A short interim report was eventually published,[1] but the material was too scanty to permit of authoritative conclusions, and the present scheme aims at collecting a much larger mass of information. The committee that has been formed has 15 members, nearly all of whom are professors of pathology in universities throughout Great Britain, and the scheme includes the appointment of investigators in large centres who will collect detailed records. This, however, will only be a part of the work, and all pathologists and others who make post-mortem examinations are earnestly invited to coöperate. The special objects of the investigation at present are:—

1. To establish, by means of a large series of weights and measurements, the standards of weight for age and proportion to body-weight of the normal thymus at all ages.
2. To investigate closely the precise cause of death in persons dying suddenly from unexplained and trivial causes, where the only apparent abnormality is the presence of a large thymus.

The committee wants the appropriate information for all cases of sudden death in apparently healthy persons, including deaths from accident, and for all cases of death in persons of 15 years or over who have an apparently glandular thymus. Not all workers, of course, have time to make very elaborate investigations, and two kinds of record card have therefore been prepared, one of them for the special investigator and the other for the busy worker who would like to help the committee as far as he can but is unable to do more than give a brief account of his cases. It is hoped that a great many practitioners will use the cards. Application for them should be made to the secretary of the committee, Dr. Howel Evans, Pathological Department, University of Liverpool.

## HYGIENE ON THE SEA.

ACCOMMODATION for seamen in ships of to-day is well illustrated in the *Asturias*, the new liner built by the Royal Mail Steam Packet Company for the South American passenger and emigrant trade to Brazil and the River Plate. The successor to the well-known hospital ship of the same name, torpedoed in the war, is the largest motor ship afloat. A special correspondent of THE LANCET was allowed by the Company to visit her before she sailed on her first voyage, and though opportunity was not forthcoming to ascertain the important particulars concerning ventilation, inspection showed the general advances made. Our correspondent writes:—

"Motor engines take up much less room than the old pattern, especially as there is no need for a boiler room, and the increased space available for crew and passengers is at once apparent, rooms and passages being nowhere less than ten feet high, constituting a vast improvement in comfort and making for health.

"The *Asturias* is a ship of 35,390 tons, 630 ft. long, 78 ft. broad, and her engines of 10,400 horse-power, working on two screws, drive her at 17½ knots. She has a crew of 465 all told, and carries 1324 passengers, 100 first-class, 250 second, and 674 third. Every compartment has supply and exhaust artificial ventilation, is heated by electric radiators, and has, it appears, one or more electric fans. All drinking water is filtered, probably by Chamberland-Pasteur candles. The stewards and crew are berthed in cabins giving them over the regulation 120 cub. ft. of space per man. There may be 12 beds together, but there are generally fewer; the beds are good, on iron standards, never, if I am right, against the ship's side, so they will not be wetted by condensation, as was once usual; besides there was cork paint—good cork paint and put on thick—to protect against the cold of winter. The lavatories in these sections are commodious but have only cold water laid on. There are full-sized baths in each section, and the water-closets are pedestal with a good flush, each in a separate compartment of sufficient size, and in each a fitting to take a roll of paper which we can hope will be provided. It is a pity that all the closets are not painted white, which shows up dirt so much more insistently. There are mess-rooms for each group of the crew. The stewards' accommodation is familiarly known on board ships as the 'gloryhole,' and one of the stewards here, being asked, said he had never seen a better 'gloryhole,' and he was probably right. Though a mess-room is provided for them, pressure of work sometimes compels them to take their dinners standing outside the pantry in the old, bad way; discipline would prevent this, and anyway, that area in this ship is airier and cooler than in most. Third-class passengers are berthed forward, and have a good saloon with the usual annexes; they sleep either on a troop-deck, with never more than four beds together, or in four-berth cabins, each with a folding wash-place, and water in cans. In all the passages are drinking taps with constant iced water-supply. The second-class cabins are aft; hot water is supplied to their basins. For the first-class there are the large and lofty saloon, numerous lounges, two libraries, a spacious verandah café, a smoking room, a large swimming bath, beautiful with white tiles and red walls, and the two promenade decks. The lower of these is some 13 ft. high, the upper is shut in with windows if desired, and higher still there is a belvedere. With all these chances of variety there should be no boredom on the voyage. There is a delightful nursery, with castle, swings, and other delights to keep the small children good tempered.

"There are two dispensaries, one with English, one with Spanish medicines. There are three hospitals, one, quite small, for the crew; one for infectious cases on the boat deck, with four beds for men in one section, four for women in another. On the main deck below is an extensive medical establishment, an inspection room with steriliser, hand-lamp, and other perquisites, the dispensary, a well-lighted and ventilated padded room, a men's hospital of ten beds, an operating room, a maternity ward of two beds, a women's hospital of eight beds, and a dining-room for convalescent patients. There is a Clayton apparatus for sulphur fumigation, also a steam disinfector, and the ship has an electric laundry.

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[1] Journal of Pathology and Bacteriology, April, 1925.

"Great attention has been paid to the kitchen arrangements. Each group, crew, third-, second- or first-class passengers, has its own galley or kitchen, and its bakery. Except for the stock pots and the steaming of vegetables all cooking is done by electricity, and in each bakery there is an electric dough-mixer. The crew's galley marked, I thought, a great advance; it was so much better ventilated, so much more comfortable than another I recalled in a ship of this line some ten years ago. But it has still to be tested in the tropics."

It will be apparent from this report that the coming of the motor-ship has disarranged all the old ideas about the practice of ventilation in ships, whatever the mechanical details or structural technique. No longer is there a great hot mass of metal, water, and air extending three-quarters of the length of the ship, heating her up and all the air inside her as well, prepared to cause motion, that is ventilation, if escapes were provided, but to give trouble if they were not. It is a great satisfaction to hear of seamen working on board a ship in which they have, all of them, a decent life, free from unnecessary crude hardships. That such a state has been at last attained seems to justify the complaints of the neglect of hygiene and welfare at sea, voiced by THE LANCET and its contributors.[1] It remains to record our sense of the courtesy of the R.M.S.P. Company in permitting our representative to inspect their ship, and to thank the medical officer, Dr. J. W. Renton, for the assistance which he gave.

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[1] See previous articles upon Hygiene on the Sea which appeared in THE LANCET in 1920, vol. ii., pp. 560, 668, 700, 1110, 1269; and in 1921, vol. i., pp. 90 and 1261.

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

J. C. Soutter to be Surg.-Lt.

### SMALL-POX PRECAUTIONS.

A Fleet order calling attention to the increasing prevalence of small-pox in the North of England advises all officers and men serving in ships and establishments at home who have not been revaccinated within the last five years to be revaccinated. The warning has been posted on the notice boards of messes of ships and establishments.

## ROYAL ARMY MEDICAL CORPS.

Appointments made at the War Office: Maj. J. W. L. Scott to be Asst. Dir.-Gen., vice Maj. D. P. Watson (vacated).

Lt.-Col. A. O. B. Wroughton to be Col.

Maj. D. P. Watson to be Lt.-Col., vice Lt.-Col. A. O. B. Wroughton (promoted).

Maj. and Bt. Lt.-Col. O. Ievers to be Lt.-Col., vice Lt.-Col. and Bt. Col. Sir E. S. Worthington, to ret. pay.

Maj. A. C. H. Gray to be Lt.-Col., vice Lt.-Col. J. J. W. Prescott (promoted).

### SUPPLEMENTARY RESERVE OF OFFICERS.

A. Hemingway to be Lt.

### TERRITORIAL ARMY.

Capt. H. E. McCready to be Maj.

## INDIAN MEDICAL SERVICES.

Col. A. N. Fleming to be Hon. Surg. to the King, vice Col. P. Dee (retd.).

Capt. H. H. Brown to be Maj.

The King has approved the retirement of Lt.-Cols. R. F. Standage and W. Gillitt.

Lieut.-Col. E. W. C. Bradfield, late First Surgeon, Madras, succeeds Lieut.-Col. R. G. G. Croly as Civil Surgeon, Trichinopoly. Col. H. Ainsworth has been nominated a member of the Bihar and Orissa Legislative Council. Lieut.-Col. J. B. D. Hunter, agency's surgeon, Nepal, has been posted as Residency's Surgeon, Rajkot. Mr. R. Burn, member, Board of Revenue, United Provinces, has been appointed President of Board of Public Health, United Provinces, vice Mr. A. W. Pim.

Lieut.-Col. Croly, Dr. Diwan Ali, civil surgeon, and Maj. N. C. Kapur have been granted leave.

# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLXIII.—STRICTURES OF THE URETHRA.

GONORRHŒA and trauma are responsible for the majority of organic strictures of the urethra. Lesions following the former condition are always situated in the penile urethra and never in the prostatic channel. They may be either single or multiple. When only one stricture is present it is most commonly placed in the region of the bulb, just in front of the triangular ligament. When multiple strictures exist, those situated near the external meatus are usually of larger calibre than those placed farther back and, moreover, are less amenable to treatment, a point of practical importance. Lesions resulting from trauma are usually associated with damage of the triangular ligament, in the neighbourhood of which structure they are invariably found. Fortunately, this type of stricture is uncommon, for it is extremely resistant to any form of treatment. Ulcerations following the impaction of calculi lead to a similar lesion. Spasm of the compressor urethræ, although not causing a stricture in the true sense, is often associated with an organic stricture and may act as a tiresome complication during the passage of instruments.

As a preliminary to treatment the following physical examination is required: (1) An external examination of the urethra, (*a*) to discover the site of the stricture and to obtain, if possible, some indication of its length and consistency, and (*b*) to define the presence of a periurethral inflammation, abscess formation, urinary extravasation of fistula; (2) a urethroscopic examination to define the site of the stricture, the position of its lumen in relation to the urethral wall, the presence of multiple strictures, and the existence of false passages; some of these points can also be demonstrated by the passage of varying sized bougies; (3) an examination of the scrotum, to exclude the existence of an epididymitis; (4) an examination of the abdomen for the presence of distension of the bladder or enlargements of the kidneys; (5) an examination of the urine as indicating the presence of urethritis or general infection of the urinary passages; and (6) a general examination of the patient as indicative of severe lesions—e.g., cystitis, pyelitis, &c.—resulting from such infections. The necessity for carrying out such an investigation is urgent, since simple uncomplicated strictures, as a rule, call for instrumental treatment, whereas complicated ones demand more radical operative measures.

### *Instrumental Treatment.*

The instruments used for the dilatation of strictures are either silk-web French bougies or graduated steel sounds. Filiform bougies are extremely useful in tight strictures, especially those accompanied by retention of urine. Silk-web bougies should be smooth and pliable, especially at the tip, and should range in size from Fr. 0 to Fr. 24. A set of steel sounds ranging from 0/0 to 14/16 is required. Great care must be taken in sterilising the instruments. Silk-web bougies may be kept in tubes through which formalin vapour diffuses, can be placed in weak antiseptic solutions or be boiled for a short period of time just prior to their passage. Steel instruments should, of course, be boiled. Care must be taken to keep the urethra as clean as possible during the use of dilatation methods, especially if there is any urethritis or infection of the urinary passages; free diuresis and antiseptic drugs should be given a day before and after the passage of an instrument; in addition the lumen of the urethra should always be washed out with weak solutions of antiseptics, such as potassium permanganate (1–8000), oxycyanide of mercury (1–6000), &c., both before and after the operation. Pain during the passage of instruments can sometimes be avoided by the instillation of novocaine (2–4 per cent.) into the urethra by means of a syringe; the use of warm lotions in irrigating the tract will sometimes prevent the production of spasm which may be induced by the passage of a bougie.

In passing filiform bougies extreme care must be exercised, as they are very prone to catch up the mucosa. If this persistently happens, the passage of a full-sized bougie down to the stricture will often stretch out these folds and permit of the successful passage of the finer sizes. The finer sized bougies are liable to catch in false passages; in this event leave the instrument in position and pass another of the same calibre alongside it; this may pass through the stricture. If the aperture in the stricture is eccentrically placed it is sometimes possible, especially if the urethra is filled with oil, to pass a fine bougie with its end tipped up in a manner similar to a "coudé" catheter. In the use of steel instruments the smaller sizes are to be avoided, for they are extremely liable to cause false passages; the larger sizes are especially useful in dilating cartilaginous strictures which run a tortuous course and are to be preferred to the silk-web bougies when the stricture has been well dilated. For example, silk-web bougies may be used up to Fr. 18 and then followed by the steel instruments. Sterile olive oil or liquid paraffin are the best lubricants.

The majority of strictures are cured by instrumental dilatation; three methods are in use—the slow or intermittent, the rapid or continuous, and the "forcible."

The *intermittent* method, consisting as it does in the passage of instruments at intervals of three to four days with the smaller sizes and weekly with the larger, is the preferable procedure as it is more likely to bring about satisfactory and permanent results; it has, however, the obvious disadvantage of prolonging the course of treatment, especially in obviously contracted strictures; moreover, it is not usually successful in its results in those strictures which have become markedly indurated and are only dilatable with difficulty. It is unwise to force the pace in the use of this method by too rapidly increasing the size of the instruments passed; it is better to stick to the rule of using the size smaller, the same size, and one size larger than that previously passed.

The *continuous* method necessitates the retention of bougies of increasing size in the urethra throughout the 24 hours, the urine being passed along the side of the bougie. This has the inevitable disadvantage of confining the patient to bed; at the same time it is a useful procedure to adopt in strictures of small size and especially in those where, for the convenience of the patient, a rapid dilatation is required. It is also valuable in some cases of urinary retention, for if a small-sized instrument is left in position even for a few hours, on withdrawal it will frequently be found that the patient can pass his water. In the treatment of tight strictures the method may be given a trial until the stricture is dilated to a reasonable size, when it may be replaced by the intermittent method. Some very indurated strictures which are unaffected by the intermittent method may respond to this procedure.

The so-called "*forcible*" *method.* Strictures should never be *forced*, but some strictures can be rapidly dilated at one sitting by the use of a succession of bougies or of such an instrument as a "whip" bougie. The method is applicable in those cases in which dilatation is urgently required; but it must only be used on a stricture of the annular type, composed of soft fibrous tissue which readily dilates. If this treatment is used in tough strictures the end-result may be disastrous.

### *Operative Treatment.*

In practice operative measures are seldom required; they are indicated, however, for the following conditions: (1) impassable strictures; (2) those which are indurated and cartilaginous and on which dilatation methods make no impression; (3) recurrent strictures; (4) those in which the passage of an instrument is painful beyond the endurance of the patient; (5) those in which the passage of instruments causes hæmorrhage or fever; (6) those in which a speedy cure is essential; (7) strictures associated with pathological complications, such as periurethral abscess, fistula, severe cystitis or pyelitis.

The methods in use are excision, internal urethrotomy and external urethrotomy. Excision of a stricture is practised in some cases, especially those which are single, are placed in the bulbous urethra, and are of the tough, cartilaginous type; the spongy tissue involved is excised together with the fibrous stricture. More commonly internal and external urethrotomy are indicated. The results of each are equally good, but the former is followed by a shorter convalescence. It can only be used where the stricture has a sufficient lumen to admit of the passage of the small bougie which is attached as a guide to the end of the urethrotome.

External urethrotomy by Wheelhouse's method is the operation of choice in all cases of stricture in the region of the bulbous urethra which are impassable and are accompanied by periurethritis, periurethral abscess, fistula, extravasation of urine or severe cystitis. It is not applicable except in cases of dire necessity for strictures placed far forward in the urethra since a permanent fistula may result.

### *Retention of Urine.*

Retention of urine associated with stricture is usually of the acute type, but may be of the chronic type accompanied by distension overflow. It is rare for a stricture to be so tight that no urine will pass through, although excessive indulgence in alcohol or over-eating will sometimes cause retention in the presence of a tight stricture, which might otherwise not occur; other causes of congestion of the urethra have similar effects. In these cases hot baths and the use of antispasmodic drugs will often give temporary relief.

The withdrawal of urine in cases of retention must be carefully performed as the sudden evacuation of fluid from the bladder may lead to suppression of urine, especially in cases of chronic retention. If it is possible to relieve the retention by catheterisation, the urine should be withdrawn slowly, complete emptying of the bladder being avoided. Sometimes the passage of a filiform bougie alone will enable the patient to pass his water naturally, either along its side or after its withdrawal; this should be followed by the passage of larger bougies; if this fails, then the smaller size should be left in position and the continuous method of dilatation proceeded with. If it is not possible to pass a catheter, an external urethrotomy should be performed, but circumstances may be such that this is not possible; a suprapubic puncture and withdrawal of urine through a suitably curved trocar and cannula may be carried out under local anæsthesia as an emergency measure. A preliminary incision of the superficial tissues is required; the same precaution of slow withdrawal of urine should be observed. This procedure should not be repeated if it is at all possible to divide the stricture.

### *After-treatment.*

Both after dilatation by instruments and by incision strictures show a strong tendency to recontract. Prolonged observation is required; it is not sufficient to restore the lumen of the urethra to its normal calibre; it must be kept fully dilated. As a prophylactic measure the full-sized instrument must be passed at regular intervals—first weekly, then monthly, two monthly, &c., until a period of six months has elapsed between two successive passages. If there is no evidence of recontraction the patient may be regarded as cured, but if there is any sign of recurrence, then the treatment must be prolonged; in any case the patient will be taking a wise precaution if he has the instrument passed at least once or twice a year during the next five years. The whole course of treatment, varying, naturally, with the type of the original stricture, may thus extend over a period of eighteen months to two years. In addition, it must not be forgotten that the infection of the urinary tract behind the stricture must be dealt with coincidentally.

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# Special Articles.

## MEDICAL PRACTICE BY THE UNQUALIFIED:

### LORD DAWSON'S ADDRESS AT THE HOUSE OF COMMONS.

ON Feb. 24th Lord Dawson of Penn addressed a meeting of about 60 Members of both Houses of Parliament on the Medical Profession, the General Medical Council, and the Public. The meeting was held in one of the committee rooms of the House of Commons

Lieut.-Col. Fremantle, who presided, said that in October last a similar meeting had been held to investigate the claims put forward by osteopaths, chiropractors, and others for special registration. It was only fair that the doctors should now be allowed to have an innings, and Lord Dawson had kindly consented to come forward and state their case. Doctors sometimes differed from each other acutely, and those of them who were present would maintain their right to disagree with everything that Lord Dawson said. He asked members, therefore, not to take what Lord Dawson might say as necessarily expressing the opinion of the medical profession. On the other hand, however great might be their differences, there was one thing that member of the profession were unanimous upon—namely, to preserve the tradition entrusted to them to protect the interests of the public. The difficulty at the present time was that the public had not sufficiently recognised that the essential duty imposed on the General Medical Council by the Act of 1858 was the preservation of these interests. It would be of assistance to bear this essential principle in mind during the discussion.

### SUMMARY OF THE ADDRESS.

#### *Criticism of the Profession.*

Lord Dawson said that the subject of his address was not only somewhat complex, but had become overlaid in the last few months by much diffuse argument and some bitterness of spirit. Whatever his own shortcomings, he could at least claim experience. By set purpose he had kept in contact with every class of the community, rich and poor, and had rendered continuous service on the staff of a great hospital Yet never had he known the public criticism of the medical profession stronger than it was at this time. If he were told: "We chasten you because we love you," he would be tempted to retort: "Perhaps it was right to dissemble your love, but why did you kick me downstairs?" Of criticism in itself the profession made no complaint whatever; fair criticism was good for everybody, and perhaps it was more useful than praise. But in recent discussions there had been not a few suggestions that doctors were actuated by selfish class motives. That was not true. Doctors had the ordinary mixed motives of mankind. (If they were too good they would not understand their patients.) But was it likely that the doctor's life—with its long hours, its sacrifice of ease and leisure, and its contact with other people's troubles—would engender a selfish policy? The selfish, sordid view would be a negation of the doctor's work. True, the medical man had his foibles. He did not like a man who had made a discovery to make a secret of it; and if such secrecy was associated with gain the profession claimed the right to cast him out. That showed that in their ideals they put achievement before money. Again, if men were successful in their profession, their colleagues liked them to give up a certain amount of their time to unremunerative work in the service of others. And doctors were quixotic enough to inculcate principles of health which, if they were carried out, would go far to deprive them of their livelihood.

There was no doubt that at the present time there was disquiet in the minds of Parliament, the people, and the press, and it was right that the profession should meet the criticism and try to resolve the doubts. Controversy had turned on three topics; the grievances of Sir Herbert Barker and Dr. Axham, the work and status of the General Medical Council, and the relations of the profession to unqualified practice. Time would not allow him to deal with all of these subjects, and he would devote most of his address to the last because it largely covered the other two. In considering what should be the attitude of the profession towards unqualified practice, he wished to lay down two guiding principles. The first was that the good of the public should ever be the over-riding consideration. This the profession accepted without any hesitation whatever. The second was that the profession should avail itself of useful knowledge from whatever quarter it came. He ought to say at once that he did not contemplate that unqualified practice should be forbidden by legal enactment; the question at issue was rather whether unqualified practice should be recognised by the medical profession and the State.

#### *Diagnosis and the Medical Curriculum.*

A necessary preliminary to treatment was a knowledge of disease—its causes and its diagnosis. To attempt to treat disease without knowing what is wrong with the body as a whole (not with a part only) was admittedly an act of folly, and to gain such knowledge there must be careful organised training. Many people had an idea that when medical students were educated they were taught medicine from the outset. The average duration of the student's career as such was five and a half years, and it was sufficiently difficult to get the training into that time. The prime object was to educate the mind—certainly not to push in empirical facts. And half the student period was taken up with sciences which had no direct connexion with medicine: chemistry, physics, biology, physiology, anatomy, pathology. This education had to be carried on in buildings approved by an impartial authority. It was not concerned with medical theories, but with pure knowledge. There could not be two anatomies and two physiologies. It was not until the student came to his last two and a half or three years that he was taught disease; then he had to go into the wards, the post-mortem room, and the laboratory. And it was only at the end of his career that treatment came in, for it was recognised that the student could be quickly taught the principles of treatment if he was properly grounded. It was over treatment, however, that nearly all the controversies raged.

There should be no recognition of a man as an *independent* practitioner, said Lord Dawson, until he had had those years of training, and had studied the nature of disease and its diagnosis. And the training should be the same for all. In this matter there could not be the least compromise. Once a man had passed the tests at the end of his training no limits were placed upon him—he could follow his predilections. He might then, if he wished, become homœopath, osteopath, chiropractor, or anything else. If the osteopaths, for example, wished to further their cause, let them select able students, put them through the medical curriculum, and send them out as apostles of osteopathy. Truth would win. Some in the profession did, in fact, practise osteopathy, and their opinions were given a fair hearing. Having acquired the knowledge, a man was free to build what theories he liked, but not until he had learned his job. This principle held good in the faculties of law or engineering, and why should it not apply to medicine? Whatever a man's views on navigation might be, whatever his genius, he was not allowed to assume control of a ship until he had passed the tests prescribed for navigators. Why should less protection be [illegible] to the human ship sailing on the sea of life? [illegible] matter of training the profession would no[illegible] way.

### *Callings Ancillary to Medicine.*

Once a diagnosis had been made, continued Lord Dawson, there was room for greater latitude. It was possible that in the future treatment might be considerably delegated to callings ancillary to medicine which could usefully operate on their own lines under general medical guidance. A large share of maternity work was already done by registered midwives. The profession exercised a certain amount of control over them, but they still had considerable freedom of action. He would not refer to nurses; they stood alone and needed no argument; but he would be very sorry to try to do his work without them, for there were so many things that they could do better than he could. Still the profession maintained over them a coördinating control. There were already many other workers in the medical field—masseurs, operators of X rays and light treatment, bacteriologists—and if he found an osteopath with manipulative skill he would welcome his aid provided that proper diagnosis preceded treatment. There was no quarter from which the profession would not accept assistance in its proper sphere so long as it was conscientiously given. But to do good all methods of treatment must be coördinated under general medical guidance.

### *Evanescent Doctrines and Therapeutics.*

The profession must have an open mind, but it was part of its duty to protect the public from exploitation by stunts and fancies, even those which were honestly put forward. These stunts were always rising and setting, and in spite of constant failure, people recommended them in the most light-hearted manner without any apparent sense of responsibility. Each time it was announced that "further delay is criminal"; that "the medical profession is prejudiced against anything new"; that it has instituted "a sullen boycott": then follows a list of cases given up by doctors and cured by the new treatment. Deep in the human mind was implanted a belief in the miraculous, and everybody seemed to be striving for some short cut which would avoid the strait and narrow path of scientific endeavour.

Osteopathy had been so much in the public mind that it was desirable to say a word about it. In its practice it was manipulative, and was thus related to its forbear, bone-setting. Though the word bone-setting had been replaced by the term manipulative surgery, they meant the same thing, but not the same thing as osteopathy. The success of manipulative surgery depended on the use of gifted fingers, and in suitable cases such treatment was valuable. But accurate diagnosis was an essential preliminary. The doctor was not allowed to talk of his successes, but the manipulative surgeon had no such restraints. Was it to be supposed he talked of his failures? He would not be human if he did, but doctors knew that they were many. Human beings were not built in watertight compartments, and the most beautiful manipulation might be worse than useless if disease of the heart or lungs, a cerebral tumour, or gonorrhœa were the underlying cause of joint affections or of paralysis. Everyone was now trying to get control of disease more early, in its more curable stages, and hence diagnosis was of supreme importance. Undoubtedly the leading men in osteopathy were good manipulators, though the rank and file were bad. But good as their work might be they had no claim to be regarded as leaders and pioneers, and it was laughable to hear them proclaimed as such by the press. This country was the proud possessor of the greatest manipulative surgeon in the world, a man who had founded schools of manipulative surgery far and wide. Yet Sir Robert Jones's name was hardly ever mentioned, though he had more skill in his little finger than the osteopaths had in their bodies. The theory underlying osteopathy was that all diseases are due to displacements of vertebræ, and that all the remedies needed are manufactured in the body. Of course, it was sheer buffoonery; if it were true, it could be proved by X rays and by anatomical dissection. Osteopathy, moreover, already had its rival, chiropractic; whilst the very latest news was that a new heretical sect had been born under the name of napropathy. In a few weeks or months there would doubtless be a fresh addition to the succession of doctrines. How many was it proposed to recognise, and which?

### *The General Medical Council.*

In conclusion, Lord Dawson turned to the General Medical Council. It was in the public interest that the profession of medicine, like that of law, should have control and discipline. The personnel of the Council would vary from time to time, and hence its interpretation of its duties would also vary. Disagreement with its decisions might beget criticism of the members, but it did not justify criticism of the Council as such. He could recall occasions when the House of Commons had represented a very reactionary policy. This policy had justified criticism of that House, but it had not led to criticism of the House of Commons as an institution. He himself disagreed with the General Medical Council in certain particulars, but that did not absolve him from his duty to obey its edicts; if he objected to these his proper course was to try to alter them. If people disobeyed everything they disagreed with, where would be the discipline in life? There were occasions when, for conscience sake, a man should defy authority. But anyone who did this should be very careful that his defiance was not associated with material gain to himself. Could that be said of all the recent offenders who were dealt with by the General Medical Council? Lord Dawson thought not. It had been said that laymen should be nominated to sit on the Council. To that he had no objection, provided that medicine was not the only profession singled out for this dilution. A doctor, he thought, would do excellent work on the Bar Council, and the Trades Union Council might usefully admit an outsider—nominated, he would suggest, by the Home Secretary.

In thanking the meeting for its patient hearing, Lord Dawson declared that good work in medicine was never easy, never theatrical, never plausible, and asked his audience to distrust alleged wonder-working short cuts. "Narrow is the way" was as true of the search for knowledge as for salvation. The profession, he believed, was really actuated by singleness of purpose and was trying to keep aglow the lamps of science and service for the public good.

### DISCUSSION.

Colonel Aplin asked Lord Dawson to explain the relations between a doctor and a bone-setter called in to give his services after a diagnosis had been made.

Lord Dawson said that it would be impossible to treat on an intellectual equality any man who had not been through instruction in the basic sciences. In his limited sphere the bone-setter would be treated with the politeness due to a comrade, provided that he did not step outside what he did know.

Colonel Aplin asked whether Lord Dawson meant that no unqualified osteopath should be allowed to treat a patient unless the condition had first been diagnosed by a doctor.

Lord Dawson replied that it was not in contemplation to make the practice of the unqualified man illegal. The public could go to him whenever they liked; but the profession could only recognise him in the limited sphere already defined.

A Member asked whether the qualified doctor should be there at the time the treatment was given, to which Lord Dawson replied that there were individual differences. Some doctors took a more rigid view than others. If the osteopath was obviously honest according to his lights and was a colleague with whom the doctor could harmoniously work, he thought that he would be accepted as such. He could not say that all members of the profession would take up that attitude.

Mr. Neville asked whether the doctor would be charged with "covering" if he took the line just indicated.

Lord Dawson said that he was not prepared to lay down rulings, but in his opinion such a doctor would not be covering because he himself would be responsible for the treatment the patient was receiving. He would no more be covering than if he were employing a masseur or an unqualified expert in light therapy to carry out treatment which he himself had ordered and approved. Covering occurred when the initiative was taken by the unqualified man. It was dreadful that people should treat diseases of which they did not know the nature, and he would punish any doctor who countenanced that practice.

The Chairman asked Colonel N. King, Registrar of the General Medical Council, to speak on this matter of covering.

Colonel King said that Lord Dawson was correct in what he said. If a registered practitioner was responsible for the treatment, and took a patient to a masseur or a light specialist or anybody else, and said "I want a certain treatment given to this patient," covering would not arise, even if the doctor might not know exactly how to administer the treatment. But if the doctor were employed by the unqualified person, as Dr Axham was employed by Sir Herbert Barker, the position would be totally different.

Mr. Peto said that supposing Lord Dawson had sent a patient to be treated by Sir Herbert Barker and an anæsthetic had been needed for the treatment, would Dr. Axham have committed any crime against the laws of the Medical Council by administering it?

Colonel King replied that if the patient were Lord Dawson's patient, and his treatment was on Lord Dawson's instructions, then Dr. Axham would have been acting under Lord Dawson's direction, and the position would have been different.

Mr. Peto, referring to Lord Dawson's remark that doctors were ready to learn from other people, said that when Sir Herbert Barker offered to demonstrate his methods at any hospital selected by the medical profession, he had been met with a refusal. Why had he not been allowed to demonstrate his methods and to do his operations for the benefit of young students or anyone else?

Lord Dawson replied that he would deprecate the young student being dragged into any of these controversial questions. He would like to see a written document setting forth the terms of this offer of Sir Herbert Barker's; he had never been able to discover it, though it was constantly referred to in the press. Some of his (Lord Dawson's) colleagues had shown a friendly spirit and tried to see the work of osteopaths, but so often there had been an evasion or an excuse. If such an offer were made it would be easy to arrange a demonstration. And there was another way open to Sir Herbert Barker. He was a man of skill and had been successful financially. His fees were often larger than those of the ordinary surgeon. Lord Dawson had always found it difficult to understand why Sir Herbert Barker had not followed the example of members of the profession by holding a clinic for the free treatment of poor people where those interested could come and see him at work.

Mr. Peto said that throughout the war Sir Herbert Barker's one wish was to treat soldiers, in suitable cases, gratuitously; but not until 1918 did the War Office give half-hearted permission for men to go to Barker or any other bone-setter at their own risk. He had received a letter from Sir Herbert Barker in which he said that if the profession had only pocketed their pride and professional dignity years ago and learned what he could teach, all would have been well, and much unhappy criticism would have been spared; and, more important than all, humanity would have been an enormous gainer. He would send to Lord Dawson a copy of Sir Herbert Barker's offer to demonstrate his methods.

Lord Dawson said that he was not concerned with the wisdom of the action of the War Office. If the principles he had laid down had been applied in that case—if, before Barker treated them, the patients had been diagnosed by a skilled diagnostician—he would have raised no difficulty.

Sir Martin Conway put forward a problem. If he went to his family physician, who diagnosed what was the matter, and if he then said that he would like to go to an osteopath for treatment, and if in spite of the doctor's opposition he went, and the osteopath's treatment required a general anæsthetic, would a qualified physician be covering if he gave the anæsthetic?

Lord Dawson replied that that was a technical point. The real answer was that the range of treatment had now widened enormously, and included every kind of manipulative and physical measure, and hence it was likely that the definition of covering might have to be modified. It was not a rigid regulation; its great purpose was to protect the public, and for their protection treatment could not be allowed unless it was preceded by skilled diagnosis.

Mr Sydney Henn asked whether Lord Dawson would extend his strictures on methods of treatment devised by unqualified men to Mr Spahlinger's treatment for tuberculosis.

Lord Dawson replied that it was difficult to be fair and just about the Spahlinger treatment, because the profession in a general way was not acquainted with the facts. They would be very glad to know them.

Lord Knutsford wished to remind Members of the House of Commons who favoured unqualified practice that they had forbidden it in regard to dentistry. The House had laid it down (and the Lords had acquiesced in the decision) that no unqualified man should operate on the mouth at all. He did not know why dentists were treated more hardly than members of the medical profession.

Lord Balfour of Burleigh said that one reason for uneasiness in the public mind was that there was no appeal from the decisions of the General Medical Council. Perhaps it might be advisable to provide for such an appeal

Lord Dawson replied that on the question of an appeal he had an open mind. He was convinced that in the Council there was every intention to be fair and just. A legal assessor was present during the sittings, and he, the speaker, was satisfied that every man obtained justice.

The Chairman said that the opinion of the law officers, as prepared by Lord Justice Lopes and Lord Esher, was that it was only right that the profession should be judged by the profession. If an appeal were made to the Courts, it would be putting one profession under the judgment of another.

Sir Ellis Hume Williams pointed out that there was an appeal from one profession to another in the case of military law—namely, to the Judge-Advocate, who was a barrister. He asked what sort of practice napropathy was.

Lord Dawson replied that he had not been initiated into the mysteries of the cult, which attributed human ills to connective tissue. There was a constant succession of these cults. Unqualified practitioners who were left to themselves often suffered from ideas of grandeur, and made assertions of power which were very dangerous. That sort of thing could not be done in the profession; doctors had to place their proposals before their colleagues in scientific meetings, and in that way their vanity was kept down. He had watched a highly skilled masseur for years, and had seen him assume almost miraculous powers. He had, therefore, questioned him as follows: If there is an acute pain in the abdomen you can cure it in no time? Oh, yes! If the patient has had it only a few hours? Yes, certainly. If the patient has a temperature of 101°, would that make any difference? No. Or if he is vomiting? Oh, no—and so, step by step, he had led the masseur to declare that he could cure acute appendicitis by manipulations. That was the danger with people who had not had a rigid training.

Mr. Peto moved a cordial vote of thanks to Lord Dawson for his address.

# FROM CAGLIOSTRO TO COUÉ:

## IMAGINATION AS A METHOD OF TREATMENT.

*Report of an Address by*

DR. GUSTAVE MONOD.

*Delivered at a Social Evening at the Royal Society of Medicine on March 1st.*

Sir StClair Thomson, the President, received Fellows of the Royal Society of Medicine and their guests at a social evening in the Society's house, when Dr. Gustave Monod, of Vichy and Paris, gave an address on the above subject. After a few preliminary remarks upon the mechanism of suggestion, Dr. Monod illustrated his thesis from the lives of three men—of different centuries, professions, motives, and technique—who alike had reputation and success as healers: Cagliostro, charlatan of the eighteenth century; Gruby, physician of the nineteenth century; and Coué, pharmaceutical chemist of the twentieth century. He gave a vivid account of Cagliostro's life and wanderings, of his display of wealth, his claims to longevity, and of those qualities and those deceptions which led him to be called not a charlatan, but The Charlatan. With his programme for manufacturing gold and his healing panacea, he had become a speculator in human greed and the fear of death. Dr. Monod recalled Cagliostro's success in advertising his cures and the stories that were current about his miraculous powers. "Our consciousness of sanity and measure," he remarked, "is not easily overwhelmed, but is more vulnerable when we are possessed by emotions, by surprise, or even by the alertness of expectancy. This was the moment when Cagliostro loved to launch his attacks upon the astonished minds of his dupes." This "splendid rogue" might conceivably have deceived himself; but the fact for emphasis was that many of his cures were authentic. His cures were the basis of his success.

The story of Cagliostro was followed by an account of the technique of a practitioner whose name was unfamiliar to most of his audience.

### *Dr. David Gruby.*

David Gruby was born in Hungary in 1811. He studied medicine in Vienna and London, and arrived in Paris in 1840. A scientist and a hard worker, he specialised in morbid and comparative anatomy. At first he gave private lectures, but later he was invited to fill the chair of the great Cuvier. Settling on the height of Montmartre, where he established an observatory, he concentrated on the new science of microphotography, and collected 35,000 pathological specimens and secured 3000 photographic proofs. His other interests were many and various. He studied the hoof of the horse experimentally so as to obviate the use of horse-shoes; he opened a free dispensary; he managed an ambulance during the war—an ambulance without either deaths or amputation. He was a pioneer in the aseptic treatment of wounds, employing cotton-wool. He was naturalised as a Frenchman by national gratitude for his services. The City of Paris thanked him officially. Three medals were struck in his honour; 23 learned societies considered themselves honoured in having his name either on their honorary or active list.

So much for the savant. What about the man himself? He was certainly original. His consulting-room was littered with books which were only dusted when they fell on the ground. The prevailing colour in the room was green, but of every conceivable tone. Another room was used as a garden; he covered the floor with zinc and planted a number of plants which he watered ceaselessly. The room was a muddy mess where everything putrefied and the excess water percolated through to the indignant tenant below. Gruby was accustomed to throw everything into his bedroom and he needed a tunnel to reach his bed. When the exigencies of space demanded that the bedstead be removed, he slept in his consulting-room on his armchair, which he prolonged by heaps of books. Every night he plastered himself with a thick layer of calf's fat and then enveloped himself in paper, with the idea of nourishing his skin. His morning toilet lasted for hours, for he was strong on bodily cleanliness. Gruby had no regular consulting hours. The higher a client was in the social scale the longer he had to wait. He was supremely indifferent when clients complained, and would often leave them and go off on his round of visits in his celebrated roofless coupé, drawn by an ancient unshod horse, baptised *Va nu pieds.*

So much for the man. What was the technique of this savant, this pioneer in scientific biology, who was also a sound physician? The note was perfect simplicity, but he knew how to appeal to his patient's imagination. His amused, somewhat stunned patients obeyed him blindly; Gruby drove his simple, commonplace devices into their subconscious minds with unerring skill. His clientele comprised most of the celebrities of Paris. His prescriptions have become legendary. His Latin was all his own. His powders were chalk. His mixtures were water. But his remedies were only efficacious when they were taken with varied details. Always, without exception, they must be taken at precisely the hour prescribed. The precise diet was also advised.

A rheumatic patient was advised to take three apples; one at 7 at the Arc de Triomphe, another at 7.20 in the Place de la Concorde, the third in the Trocadero Gardens at 8. That meant a brisk morning walk, and the treatment, needless to say, was successful. A nervous member of the Stock Exchange, with persistent migraine, was ordered to go to Versailles by the 12.30, to eat an orange, and to return by the 2.24 train. He was, in this way, induced to give up his daily excitement at the Bourse. A lady, who suffered from intractable insomnia—one of those who "do not sleep a wink"—was ordered to take a spoonful of his famous water every half hour during the night. The nurse had no difficulty with the first two or three doses. But when the fourth was presented, the indignant lady insisted on being allowed to sleep in peace. He was called to a paralysed patient. He found her immobilised in her armchair. "What oil do you use in the kitchen?" "Why, ordinary oil, I suppose." "Can I see it?" When the bottle was produced Gruby uncorked it and calmly began emptying it on the carpet. The patient jumped up: "Hang it all, that's a Persian rug." The rug was ruined—the lady cured. Gruby's therapy was based on the device of using the patient's imagination to reinforce his own pre-eminent common sense. His astonishing successes earned for him the odd title of the "derviche guérisseur." The two Alexander Dumas, Chopin, Ambroise Thomas, Liszt, and Georges Sand were among his clients.

### *The Technique of M. Coué.*

The last half of Dr. Monod's paper was devoted to a dissertation on M. Coué, whom he described as Bernheim's disciple. Coué's craft, said Dr. Monod, consists in preparing a road, in making the path straight for the propulsion of concepts sufficiently potent to seize on the entire field of the subconscious mind. These ideas do not mature as a fruit of the will. They are unmistakably labelled with automatism. A simple phrase is repeated so rapidly that there is no time for reason to insinuate itself into the subconscient mind. *Ca passe*—repeated with the rhythm of a bee's wings. . . .

The logical cohesion of Coué's technique is striking. It is the unswerving applications of his principles in all their implications. But it is possible that he does not realise that in an atmosphere where bluff and stage management hold the world in their formidable grasp, his cheery good nature provides his patients with an astonishing and striking contrast. The more he repeats that he personally is of no importance the more he subjugates his hearers. The results that he obtains are, of course, the fruit of long experience. His public is won over as soon as he appears. He uses a conversational tone and a simple vocabulary. He begins the reassurance of his audience by reading his correspondence, including expressions of gratitude for cures and strange requests. A woman writes that as she was one of his convinced disciples she had bought two Panama bonds, but in spite of all, the numbers had not won. Criticism is at once disarmed and everyone laughs. Then he states his principles in a few words and proceeds at once to apply them. He tests the suggestibility of his patients in asking them to squeeze their hands tightly and to say to themselves that they cannot possibly loosen them. This experiment is sure to succeed. The forcible contraction of the hands is obviously voluntary. "Imagine that you can't do it." This is the addition of imagination to will; they are not in opposition. And the expert Coué, like a pointsman on the railway, has switched on the train to another line without the passenger being aware of it. Henceforth he can lead them where he wishes. His will has been substituted for the patient's will. The sitting concludes with a short peroration, always the same, which M. Coué recites in a monotonous voice, after having requested his hearers to close their eyes. Many of them instinctively join their hands in prayer. It is a short homily of optimistic philosophy with a little digression sketching out a few hints on digestion on the standard of a kindergarten class. One is amazed to hear M. Coué finish up by counting one, two, three so prosaically. Everyone looks as if they were waiting for an Amen, because it must not be forgotten that his stage management is borrowed from ordinary cultural rites.

All this is very dull, is it not? Perhaps! But I must now show you that it is a most formidable and disconcerting discovery. This is not prayer; M. Coué goes directly for his purpose. No, this is not prayer; it is an answer to prayer. You can call it M. Coué's answer to the Lord's Prayer. You will have your daily bread and you will digest it perfectly. "Even if you have imperious reasons, real obstacles which give you pain and grief, you will be free." In other words, your trespasses are forgiven. "If you are assailed by evil thoughts, temptations, I wish them all to be swept from your imagination." This is equivalent to saying you will not be led into temptation and you will be delivered from evil. "O, M. Coué," wrote a worldly woman, "I would like to pray to you. You are God Himself." I am not surprised.

It is obvious that M. Coué addresses himself to a definite category of morbid conditions. Mythomaniacs are an immense class. We are all of us more or less the subjects of mythomania, even the healthy people at the foot of the scale. At the other extremity, when mythomania is carried to excess, it becomes a psychosis, a disease of the soul. Between these extremes are found, in a zone with indefinite frontiers, a vast number of unhappy beings, the vain, who are possessed by a passion for attracting attention to their exceptional situation. They are always playing a part; they lie so as to provide themselves with stage scenery. They lie by word and gesture; they lie in thought and in body; they lie to the world, and they lie to themselves. The real drama is that they lie to themselves. They are caught in their own traps. They imagine a whole complex of contractions, deafness, blindness, and pains and aches without end.

Here is Coué's clientele. His immediate results, it is true, appear remarkable. The word cure runs trippingly on their tongues. And all is so simple. Coué is like a visitor to a golf club to whom the game is explained. Why, says he, do you pay out good money and give yourself so much trouble and walk so far carrying so many clubs? I'll show you what to do. Taking the ball between his thumb and index finger he calmly places it in the eighteenth hole.

### *Limitations and Perils of Auto-Suggestion.*

Dr. Monod continued to the following effect:—

A lesion is only curable by imagination if it has been produced by imagination. This law of reversibility is a general law in biology. Troubles complicating a lesion will disappear if they are imaginary and if the lesion be represented by 1 and the imaginary troubles by 99, then clearly the abolition of 99 per cent. of the total complex will be experienced as a miraculous result. But it is not a cure. Coué would say of a hernia: "The subconsciousness sees to it that the tear in the peritoneum heals up little by little." Actually the imagination can only suppress what it has added—pain, fatigue, anxiety—which is a great deal. The following is a quotation from Coué:—

> "The subconscient mind having accepted the idea that the fibroid must disappear, the brain orders the arteries which nourish it to contract. They do contract; they refuse their services, and as the fibroid is deprived of food it dies, dries, is reabsorbed, and disappears."

M. Coué admits that disease may be imaginary, but he has never told us that a cure may be imaginary. He says that his explanations are so simple that there are only two categories of people who do not understand him—imbeciles and those who refuse to understand. A third might be added—those who imagine that they understand. If you break a bone, says M. Coué, go to the hospital. Why does the brain not send the necessary orders to heal broken bones? Perhaps it is because X rays make such an irresistible appeal to reason. And no patient's imagination will refuse to yield to his indignation if there is a vicious union. M. Coué, it is clear, fights shy of controllable conditions, and here he shows the common sense with which he is so plentifully endowed. Unfortunately there are grounds for fearing that his disciples do not share his wisdom.

Everyone nowadays discusses medicine; it is so easy to be a healer. Overnight one may score over the ignorant oafs who have been at pains to work for a qualification. It is the strength of our would-be therapists that they know nothing. All doubts disappear from those who are amenable to Coué's influences, and all those small minds saturated with neighbourly love are mightily tempted; as also is the inevitable band of predatory exploiters which has always clustered round disease. M. Coué wishes us to concentrate on the good side of his method, but there are other aspects. He tells us that criminals are victims of auto-suggestion. Moreover, if the expectant heir repeats every morning: "I will sweeten Uncle Paul's coffee with arsenic," and Uncle Paul dies, there will be no peace. He will be torn by remorse. Can this also be charmed away? Perhaps not. M. Coué replies to one of his disciples: "You cannot possibly obtain relief in such a case as you describe, because, in this case the remorse really exists; it is a fact." Quite so. But is not a hernia also a fact?

### *The Lessons to be Learned.*

And now to conclude. One point is incontestable; without operators, healers, there is no cure. Cagliostro, Gruby, and Coué used the same mechanism in different ways; and they did cure their patients. The second point is that their cases all belonged to a definite category of patients. A third is that each of these wizards chose a foreign country for his field of battle. The Sicilian and Austrian chose France, the Frenchman England and America. (It is noteworthy that Coué failed absolutely in Italy.)

I maintain strongly that no physician can afford to neglect any kind of successful therapy. What Coué has taught us is that we should measure our patient's suggestibility. We must add a psychological diagnosis to our ordinary diagnosis; one patient demands authority, another persuasion, a third is worthy to be our collaborator, our partner in the search for truth; and all of them need and are grateful for our sympathy. But I claim that we can do this quite simply. The replies to our ordinary questions suffice. It is easy to see if your patients' answers are or are not suggested by your questions.

Above all, harmful suggestions must not be given. We have recently seen a play in Paris called *The Triumph of Medicine*. It was an acrid and penetrating criticism of our art. A Dr. Knock elaborated a new formula: "a fit man is merely a sick man who doesn't know he is ill." And so, full of his design to make money as soon as possible, he succeeded in persuading everyone in his village and in the neighbourhood that they were suffering from a highly variegated list of diseases. The walls of his consulting-room and his waiting-room were covered with coloured anatomical diagrams of pathological conditions. In a few weeks everyone succumbed and the inn was turned into a nursing-home.

Let us use good suggestions. Let the consulting-room suggest recovery rather than disease. What is the use of glass cupboards with shining instruments? They do not provide useful suggestions? Neither are unmeaning uncoordinated pieces of furniture suggesting a torture chamber to be recommended. Let us face facts as they are. Medicine was materialised when it made itself scientific. We have studied death rather than life. It is said that in America a physician has no need to see the patient; he has a number of reports from expensive specialists before him, and makes his decision from them. We must appeal to our patient's reason. Yet how often do we discuss the therapy of the mind with our students? Psychotherapy must be taught.

Why should we not profit by Coué's lessons? He gives us a lesson in medical history. Coué has pulled us up, and with a round turn we have gone back to pre-Hippocratic days. We have retrogressed into the period of magical incantations. *Everydayineveryway* is no more and no less than *Abracadabra* sung or hummed in modern English. And this is fashionable also, is it not? Tired out with the faultless order and serenity of the Ninth Symphony we fly to the primitive jazz of the negro as a salve for wearied minds.

Coué is absolute in his methods, and to my mind his greatest merit is supreme simplicity. In the troubled days we are to live in for the rest of our lives we must hold to our own ground and we must not imitate. These three healers are, above all, themselves—Cagliostro, the perfect rogue; Gruby, absolutely original; and Coué, who has succeeded because he pushes his principles to their logical limit. Coué does not even need to apply his principles; he lives them, and the rest follows as night follows the day.

Our therapy will, I venture to think, improve if we develop our personality. We do not need either to will or to imagine, we must be ourselves. Let us put our faith in our work. Let us put our hope into our therapy. Faith and hope, the foremost virtues. The third and greatest is charity.

## MEDICINE AND THE LAW.

### THE THREE YEAR SENTENCE.

IN presenting a recent criminal appeal (against the sentence of three years' imprisonment passed on Hayley Morriss) counsel contended that the decided cases showed that no one should be imprisoned in a local prison for more than two years; "the principle was that no man could endure being shut up with lack of exercise and fresh air for longer than two years." The accused had been sentenced to two years' imprisonment with hard labour on one charge and to an extra year without hard labour on another. In rejecting the appeal the Lord Chief Justice suggested that Parliament should remove what he called a blemish from our penal legislation and should provide for increased penalties—i.e., penal servitude—where a multiplicity of offences—not necessarily of a sexual nature—has been committed, and where punishment is at present limited to two years' imprisonment. Mr. Greaves-Lord's Criminal Justice (Increase of Penalties) Bill is the outcome of Lord Hewart's suggestion; it has quickly passed its second reading and has received Home Office approval. It briefly proposes that where a man is convicted of two or more offences punishable by imprisonment which might amount in the aggregate to three years or more, the court shall have power to sentence him to penal servitude.

English criminal law, if allowed time, adapts itself eventually to changes in public opinion, usually in the direction of lighter penalties. When the death sentence was no longer thought essential for a large number of offences, transportation found its way on to the statute book. When in turn the barbarity of transportation was recognised, penal servitude was evolved as a statutory substitute. Penal servitude was standardised as a punishment of the duration of three years or more. The Penal Servitude Act of 1891, which effected this standardisation, at the same time allowed a judge to award imprisonment (with or without hard labour) for a term not exceeding two years in cases which seemed not to merit penal servitude. Thus, by a kind of convention the internment of offenders became separated into two compartments—on the one hand imprisonment up to two years, on the other penal servitude for three years or more. Each had its own conditions of work, dietary, and confinement, and these were relatively so different that many convicted persons preferred—and would even implore judges to inflict—three years of the latter rather than two years of the former. Two years' hard labour was spoken of as almost a death sentence; five years' penal servitude was by comparison almost a healthful holiday. Doubtless, as Mr. Greaves-Lord said lately in Parliament, in the early days of imprisonment with hard labour, a man who was able to survive two years of it came out of prison completely broken. In upsetting a sentence of three years' imprisonment in the case of R. *v.* Goldstein in 1916, Lord Reading was unquestionably influenced by considerations of health. Now, however, it seems, conditions are entirely changed. The Home Secretary stated in the recent debate that, after watching men at work who were respectively serving terms of hard labour and of penal servitude, he is satisfied that there is no longer any difference between the two, and that the quantity and quality of the food is as good in the one case as in the other. If this is so, and if conditions are really the same in the two-year as in the three-year period, there seems no point in retaining the old distinction between imprisonment and penal servitude. The latter description has a harsh sound no longer appropriate. The old classification seems, in fact, to have become as obsolete and arbitrary as the distinction between felonies and misdemeanours, a mere matter of historical development to which the law still clings tenaciously.

### LOCAL AUTHORITY'S POWER TO PROHIBIT MILK-SUPPLY.

Common sense triumphed over technicalities in The King *v.* Hale U.D.C. (*ex parte* Wright) reported in the *Times* of Feb. 24th. The question, said the Lord Chief Justice, was whether it was safe that milk should be distributed for human consumption from a farm where there was a cow which was "a sort of reservoir of potential diphtheria." The facts of the case were instructive. In December, 1924, an alarming outbreak of diphtheria occurred in Cheshire. The cause of infection was traced to a dairy. The milk was then traced to a farm in the area of the local authority of Bucklow. The medical officers of the Hale and Bucklow districts made prompt investigation and found six out of seven persons at the farm suffering from diphtheria. The patients were sent to hospital and the Hale council served a statutory notice (under Section 4 of the Infectious Diseases (Prevention) Act of 1890) calling upon the farmer to show cause why an order should not be made prohibiting any further supply of milk from his farm. The farmer was at the moment in hospital and his father-in-law consented on his behalf to the order, this being apparently the technical irregularity on which the farmer afterwards relied in court. A cow at the farm was found to have diphtheritic germs in a sore udder. The sore afterwards healed; the cow had a calf, and the cow's milk was free from germs; but the local authority was not satisfied that it was safe to remove the embargo so long as the cow, a potential source of diphtheria, remained on the farm. In the course of time (a year later, it was stated) the farmer applied to the courts for a *certiorari* to quash the order or a *mandamus* to compel the local authority to withdraw it. He relied on the technical irregularity in omitting to comply strictly with the procedure under Section 4 of the 1890 Act, and he pointed out that the cow was now well. The local authority replied that it would remove the embargo if the cow were slaughtered, the loss involved by slaughter being apparently a matter of only £5. The farmer rejoined that the council had no right to impose a condition of slaughter; only the Minister of Agriculture could do so. Thus, for the sake of what counsel described as a certain "bovine obstinacy," law costs greatly in excess of the sum of £5 were incurred. The farmer lost his case and had to pay the costs. Lord Hewart said the irregularities on the part of the council were neither large nor comprehensive. It was not a case either for *certiorari* or for *mandamus* The court refused to take the responsibility of deciding that, with this cow still upon the farm, the local authority should be compelled to permit the distribution of milk therefrom.

### A QUESTION OF SURVIVORSHIP: MEDICAL EVIDENCE INCONCLUSIVE.

If two or more persons perish in a common calamity, and if the circumstances leave it uncertain which of them died first, the law will in future presume (for the purposes of title to property) that the deaths occurred in seniority, the younger surviving the older. This has been the position since the beginning of this year in consequence of the new Law of Property Act. Previously the law in England made no such presumption but examined the evidence and, in default of evidence, left the question of survivorship unanswered. What will perhaps be the last case under the old law has just been heard in the Probate Court. In a crash near Croydon in December, 1924, an aeroplane containing a pilot and seven passengers dived to earth nose foremost. The petrol tanks burst; a fierce fire broke out, and the whole party lost their lives. Among the passengers were a husband and wife. The husband, as it happened, was illegitimate, had made no will, and left no issue. If his wife could be proved to have survived him, she would take her share of his estate, and at her death her next-of-kin would benefit. If she did not survive him, the property went to the Crown. The wife's body was found underneath all the others. Her burns were chiefly post mortem and there was a head wound which had lacerated the left lobe of the brain. Dr. R. M. Brontë, who made a post-mortem examination, found extravasation of blood, indicating that the wound occurred before death. The husband's burns were mostly ante-mortem. He had a fractured pelvis and other injuries, but Dr. Brontë found no extravasation of blood in his case. The judge accepted this evidence but found it inconclusive. "I know," he said, "that these two persons were killed; that the skull of one was fractured in life; that the other had a fracture sustained after death; that both were burned while in life; and that both bodies were burned after death. At what period of time in the progress of the collapse of the machine they died, I do not know." Thus, in accordance with the law in force at the time, the judge left the question of survivorship unanswered for want of clearer evidence. The wife's next-of-kin failed to discharge the burden of proof which the law laid upon him, and the husband's estate was awarded to the Treasury. Lord Merrivale remarked that he had had every possible assistance from the medical men called on both sides, but he could not eliminate the doubt arising out of the series of possible causes of death—shock before burning, burning, shock upon impact with the ground, and injury by fracture occurring either before, or upon, or after impact with the ground.

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THE Annual Oration of the Hunterian Society, entitled "The Private Practitioner as Pioneer in Preventive Medicine," has been printed as a booklet by the Oxford University Press, and is now on sale, price 1s. net.

# NATIONAL HEALTH INSURANCE.

## EXTENSIONS OF BENEFITS.—RECOMMENDATIONS OF THE ROYAL COMMISSION.

THE Report of the Royal Commission on National Health Insurance appears this week (H.M. Stationery Office, Cmd. 2596, 6s. 6*d*.). The Commission was appointed in July, 1921—

> "to inquire into the scheme of National Health Insurance established by the National Health Insurance Acts, 1911–22, and to report what, if any, alterations, extensions, or developments should be made in regard to the scope of that scheme and the administration, financial, and medical arrangements set up under it."

The membership of the Committee consisted of Lord Lawrence of Kingsgate (Chairman), Sir John Anderson, Sir Humphry Rolleston, P.R.C.P., Sir Alfred Watson, Sir Arthur Worley, Sir Andrew Duncan, Mr A. D. Besant, F.I.A., Mr. Fred Bramley (resigned March, 1925), Mr. James Cook, Mr. John Evans, Prof. Alexander Gray, Mr. William Jones, Mrs. F. N. Harrison Bell, Miss Gertrude Tuckwell, with Mr. E. Hackforth (secretary) and Mr. J. W. Peck (assistant secretary).

The Report itself is divided into a Majority Report (292 pages), a Minority Report (27 pages), and two appendices containing the reports of the Departmental Actuarial Committee and a list of persons and bodies by whom evidence was submitted. We comment in a leading article upon the general conclusions and recommendations of the Majority Committee; the latter summarises as follows the contemplated development of the health services and the directions in which extension is desirable.

### CONTEMPLATED DEVELOPMENT OF THE HEALTH SERVICES.

The various medical services organised by the State will continue to expand both in their scope and in the range of persons to whom they apply. These services should be maintained in close relationship with each other, both at the centre and in their local administration In considering any changes or developments in the Insurance Medical Service regard should always be had to the importance of the fullest possible coördination with other health services.

Medical benefit has been a valued and successful element in the scheme of National Health Insurance. While it has been inevitable hitherto that medical benefit should be confined to a general practitioners' service, this limitation has detracted from the value of the benefit and its removal is urgently desirable. The additional benefits of a treatment character have been, on the whole, successful and appreciated, though in varying degrees, but they suffer from the following defects inherent in the conditions under which they are provided.—

(*a*) They are only available for those insured persons who are members of societies having surpluses at valuation, and only for those members who fulfil certain qualifying conditions, and that consequently large classes of insured persons are debarred from participating in these valuable services.

(*b*) Even among the societies giving a particular type of treatment benefit there is no uniformity in the content of the benefit, with the result that there is widespread confusion in the minds of the insured persons as to what precisely their rights are.

(*c*) The arrangements made between societies and professional bodies are wanting in authority and uniformity, and in some cases are accompanied by undesirable conditions.

It is desirable that, as soon as funds are available, the scope of maternity benefit should be expanded to cover medical and midwifery services in addition to a cash payment; that the service element should then be administered by the local health authorities and be coördinated with the other local medical services; and that a cash element should be retained and be administered in connexion with the other cash benefits.

### Recommended Extensions of Benefits.

The extensions of statutory benefits, to be made as and when funds are available to meet the cost, should be placed in the following order of priority :—

(*a*) Extension of the scope of medical benefit.

(*b*) Provision of allowances in respect of dependants of insured persons in receipt of sickness or disablement benefit.

(*c*) Improved provision at the time of pregnancy and childbirth for insured women and the wives of insured men.

(*d*) Provision of dental treatment as a normal benefit.

### *Medical Benefit.*

The extension of the scope of medical benefit should take the form of the provision of

(*a*) expert medical advice and treatment for persons who can travel to meet the specialist ;

(*b*) expert advice for persons who are unable to travel ;

(*c*) laboratory services ;

but in-patient treatment in hospitals, major operations in the home, maternity services, and dental services should not be included at present.

The extended service should be provided not by way of development of the out-patient work of the hospitals, but through an independent scheme organised, under the general direction of the Ministry, throughout the whole country by the insurance committees or their successors, as an integral part of medical benefit.

Provision should be made in the scheme for the closest cooperation between the general practitioners and the specialists, particularly for the exchange of information as to cases and for the giving of definite guidance to the general practitioner as to both diagnosis and treatment.

Any practitioner possessing the requisite qualifications should be entitled to take part in the work, and the decision as to whether particular practitioners possess these qualifications should lie in the hands of a mixed lay and medical committee for each area.

In the initial stages of the scheme arrangements might be made for patients who are able to travel to attend either at the specialist's consulting-rooms or at the out-patient departments of hospitals, or at clinics established by the local administrative authority, as may be found most convenient in various areas.

The scheme of extended medical benefit could be financed through the funds made available under a scheme of pooling of surpluses.

Ophthalmic benefit should be recognised as part of the expert out-patient service under the scheme, and should not be available except on the recommendation of a medical practitioner.

### *Sickness Benefit.*

An increase in some form of the normal cash benefit payable during incapacity for work is very desirable. For financial reasons this increase must at present be limited to an allowance in respect of dependants, where sickness or disablement benefit is payable, on the following lines :

(*a*) An addition to the sickness benefit of 2*s.* a week in respect of each dependant.

(*b*) An addition to the disablement benefit of 1*s.* a week in respect of each dependant.

(*c*) The dependants' allowance should be paid in all cases of incapacity of an insured married man even where the wife is herself a wage earner.

(*d*) The dependants' allowance in respect of dependent children should only be paid from the husband's insurance, not from the wife's.

(*e*) The dependants for the purposes of the scheme should normally be the wife and the children up to 14 years of age, but in order to meet the case of the widower with dependent children, an additional 2*s.* in the case of sickness benefit and 1*s.* in the case of disablement benefit should be paid in such case.

(*f*) In the case of the insured widow with dependent children, the allowance should be paid only in respect of the children and no additions similar to those in (*e*) should be made thereto.

(*g*) In the case of the insured woman whose husband is uninsured, no allowances in respect of dependent children should be paid from the woman's insurance.

(*h*) In the case of unmarried insured women, no allowances should be paid in respect of dependent children, but additions at the rates of 2*s.* to sickness benefit and 1*s.* to disablement benefit should be paid in respect of a widowed mother living with the insured person and not having sons to whom she can look for support.

### *Other Benefits.*

No change should at present be made in the existing provision for maternity under the insurance scheme.

While a complete dental service available to the whole insured population would be an eminently desirable addition to the insurance scheme, no such change is financially practicable at present, and therefore the general arrangements for dental services under additional benefit schemes should be continued.

In order to secure more uniformity in, and effective supervision of, these services a regional dental staff should be instituted in a form that may be appropriately expanded when a statutory dental benefit is feasible ; and a substantial proportion of the cost of the regional dental staff should be borne by the approved societies providing dental benefit.

Owing to considerations arising from a survey of the development of the various medical services provided or supervised by the State, and having regard to the very large cost involved, no extension in the direction of provision of medical benefit for the dependants of insured persons should be made.

### Administration of Medical Benefit.

The Commission recommends that Insurance Committees be abolished and their powers and duties transferred to committees of the appropriate local authorities, such committees to contain possibly a proportion of coöpted members.

In regard to the remuneration and control of insurance practitioners, the Commission recommends that the capitation method of remuneration of the insurance practitioners be continued as the normal method, but that the attendance method be retained as an alternative for adoption in particular areas when so desired. It is desirable, they think, that any settlement of the rate of remuneration of the insurance practitioners should be made valid over a reasonable period of years, so as to avoid financial uncertainty to both the contracting parties. The existing machinery for regulating admission to and removal from the medical panel, and for dealing with complaints as to the conduct of practitioners, chemists, and patients is held to be necessary and to operate fairly. This machinery should be continued generally in its present form, except that where, on an inquiry resulting from representations that an insurance practitioner should be removed from the panel, it is decided that such removal is not justified, the practitioner should be given an opportunity of a further hearing before any lesser penalty is imposed by the Minister.

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## PARIS.

(From our own Correspondent.)

### *Athletics and Cardiac Lesions.*

During recent years military inspection of young recruits has revealed the frequency of heart lesions traceable to over-indulgence in athletics and competitive contests, especially without adequate preparation. Such cases, according to recent reports, are diminishing in number, and it appears that in France sports and athletics are being practised on a saner physiological basis than formerly.

### *Protection of the New-born against Tuberculosis.*

Prof. Calmette has just reported to the Académie de Médecine on the results of his investigations in collaboration with other workers at the Pasteur Institute on the protection of the new-born against tuberculosis by means of the vaccine known as B.C.G. (Vaccin Bilié Calmette Guérin). His experimental research, it may be recalled, has established the following facts: (1) Immunity against infection or reinfection with tuberculosis can only be produced by preliminary inoculation of sensitive individuals with living bacilli. (2) To ensure that the organisms used for this inoculation are tolerated by the lymphatic tissues and do not form tuberculous lesions, they must be of a strain which in the course of generations has been deprived of the power of forming tubercles and which cannot recover that power even in favourable circumstances. It is necessary, of course, that the bacilli should keep their antigenic properties and should still be able to produce tuberculins. (3) It is only possible to forearm those subjects which have not been exposed to any previous infection. (4) Protection can be afforded either by inoculation of B.C.G. or by its administration by the mouth. (5) In this country, which has long been civilised, infection is so widespread that inoculation should be done during the first ten days of life.

Prof. Calmette's investigations have been made on more than 5000 children in France, 117 in Belgium, 3352 in Indo-China, and 218 in Senegal; so that they cover many different races. Whereas the mortality from tuberculosis amongst European children up to 1 year of age brought up in infected households is never less than 25 per cent. (in Paris it is 32 6 per cent.), the death-rate amongst those treated with B.C.G. vaccine is less than 2 per cent. The treatment thus saves at least 92 per cent. of the children who would otherwise die from tuberculosis in the first year of their lives. From the experimental data and observations collected during the past five years by Prof. Calmette it is now clear that this inoculation of the new-born is not only quite safe, but is also certainly effective. It therefore seems desirable to encourage its use by doctors and to recommend its employment above all in families in which the children are exposed to infection. The immunity conferred by the vaccine appears to last from 15–18 months, and it is desirable that re-vaccination should be done towards the end of the first and of the third years. It goes without saying that the treatment does not permit of any relaxation of the hygienic precautions intended to prevent massive infection of the young.

### *Testing Sanocrysin.*

Calmette, Bernard, Bezançon, and other French investigators are testing sanocrysin in tuberculosis. Results have varied and it is stated that indications cannot yet be given precisely, though the preparation seems most useful in recent and progressing caseation. Sanocrysin appears to modify the lesions; its specific effect is rather doubtful and its action variable, so that conclusions on its therapeutic value are not yet warranted.

### *Death following Antitetanic Injection.*

Deroide, of Calais, reports the rapid death of a 5-year-old girl following a single subcutaneous injection of antitetanic serum. The serum, injected prophylactically 24 hours after wounding of the foot by a nail, was prepared by the Pasteur Institute. The label stated that it would be effective until October, 1926. One or two minutes after receiving the serum the patient made convulsive movements, evinced distress at the throat, and rapidly collapsed. All emergency measures, including intracardiac injection of adrenalin, were vain. This case appears to be the first of its kind. The patient had never previously received parenterally any foreign protein. The case will draw renewed attention to the Besredka method of preventing anaphylactic shock by giving progressively increasing injections.

At the Paris Ophthalmological Society Valude and Autrevoix recently showed a case of ocular tuberculosis coming on in a child of 6 months, who died of meningitis three months later. The ocular lesion was supposed to be a tumour, until enucleation revealed extensive tuberculous infection. The lens and its ligaments were the only unaffected structures, and lesions were particularly marked in the uveal tract, retina, and optic nerve. The youngest case of ocular tuberculosis hitherto reported was aged 18 months.

Berthelot, Risler, and Foveau de Courmelles have just reported to the Académie des Sciences several cases of injury occasioned by ultra-violet rays. These injuries have occurred in persons making spectroscopic tests and in blowers of the glass bulbs used for incandescent lamps. Lamps having very thin walls may allow the ultra-violet rays to filter through. The lesions generally produced are painful erythemas and conjunctivitis.

Mouriquand has just transmitted to the Académie des Sciences, through Prof. Widal, a communication showing that a maize diet is not alone a sufficient cause for pellagra; it must coexist with poverty and under-nourishment. This opinion largely supports that advanced by Goldberger and his associates.

# Correspondence.

"Audi alteram partem."

## HAMILTON DRUMMOND MEMORIAL FUND.

*To the Editor of* THE LANCET.

SIR,—In your issue for Oct. 24th last you published a first list of subscribers to the above fund. Since that date further sums have been received or promised from those whose names follow, making in all a total of £533 17*s.* 6*d.*

Dr C. N. Armstrong, Dr. Sarah B. Allen, Dr. Wm. Anderson, Dr. Paige Arnold.

Mr. I. Brumwell, Dr. H. S. Brown, Mr. W. Girling Ball, Dr. E. F. Bell, Mr. A. J. Blaxland, Dr. Leonard F. Browne, Dr. Percy Bennett, Dr. J. F. Bridge, Dr. Monica Bell, Dr. E. C. Braithwaite, Dr. Blench, Dr. Beaton, Mrs. G. F. Bengough.

Mr. H. W. Carson, Mr. Lionel Colledge, Miss Jessie D. Carr, Mr. Ralph Carr, Dr. J. F. Crombie, Mr. F. G. H. Clayton, Mrs. F. G. H. Clayton.

Dr. Alfred Duke, Mr. Sydney Dunstan, Dr. K. S. Dickinson, Dr. R. Leslie Dagger, Mr. Fred E. Dotchin.

Dr Robt. Forsyth, Dr. S. B. Fox, Dr. C. B. Fox, Dr. H. N. Fletcher, Prof John Fraser.

Dr. C. N. Gover, Dr. Helen Gurney, Dr. John Galloway, Mr. Gordon Gordon Taylor.

Prof. Howden, Prof. W. D. Halliburton, Dr. P. Henderson, Dr. J. Berry Haycraft, Dr. Jas. Hudson, Dr. W. A. Hewitson, Dr. Hobbs, Dr. Willmot Holmes, Mr. C. W. M. Hope, Dr. R. S. Hindmarch, Dr. Phyllis Herbertson.

Dr. J. Stanley Johnson, Dr. Maurice E. Jones.

Mr. and Mrs. Kirkbride.

Dr. Leathart, Dr. W. E. C. Lunn.

Mr. R. G. E. Mortimer, Mrs. Morel, Mr. J. McGregor, Sir Berkeley Moynihan, Mr. Geo. Mason, Dr. A. C. H. McCullagh, Dr. J. W. McNee, Dr. Wm. Mackenzie.

Sister Nichol.

Dr. Walkinshaw Oselton.

Dr. Ivan Pirrie, Mrs. Pirrie, Mr. W. Mark Pybus, Miss A. M. Parsons, Dr. G. Newton Pitt.

Mr. R. Russell, Dr. Amy Robinson, Royal Victoria Infirmary (Resident Medical Staff, Miss Brown (matron), Assistant Matron and Nurses, Lay Staff).

Mrs. R. E. E. Spencer, Dr. Wm. Seymour, Mrs. Shiel, Miss Shiel, Dr. Una Swanston, Dr. F. W. Sinclair, Mr. Fred E. Schofield, Mr. G. G. Shiel, Dr. T. E. Stoker, Mr. Fred Straker, Dr. J. A. Stobbs.

"Thankful Helper," Dr. W. A. Tweddle.

Sister Whitfield, Dr Olive Wilson, Prof. P. D. Wilkie, Dr. G. J. Williams, Sir Cuthbert Wallace.

In addition a sum of over £280 has been subscribed by past and present officers of the Northumberland Yeomanry. Doubtless there are still many others who will wish to join in this tribute, and the Committee will be glad if they will do so at once. Individual subscriptions for any amount not exceeding five guineas may be sent to the treasurers: Prof. R. P. Ranken Lyle, at 11, Osborne-terrace, or to Mr. Philip E. Noble, at Lloyds Bank, Grey-street, or direct to me at The Hawthorns, Osborne-road, all in Newcastle-upon-Tyne.

I am, Sir, yours faithfully,

G. GREY TURNER,
Convenor of Committee.

March 1st, 1926.

## FREEDOM RESEARCH FUND AT THE LONDON HOSPITAL.

*To the Editor of* THE LANCET.

SIR,—In August last a gentleman, who desired to remain anonymous, called here and stated that he wished to make a gift for some charitable purpose and asked advice. We had many conversations and eventually he agreed with our suggestion that most good could be done by endowing medical research, which was badly handicapped in this country because there was little or no inducement for a man to take up research as a life-work. We pointed out the uncertainty of the pecuniary prospects of those who took up research work at the beginning of their careers and he agreed with our views.

We drew up a trust deed embodying points which we considered essential—namely: first, that the sum he intended to give should be invested in trustee securities; and secondly, that the income should be spent in salaries and not on bricks and mortar, and not in laboratory equipment.

Later the donor presented £50,000 in such a way that no one could possibly trace its source, and it has been invested.

The Fund, which is known as the Freedom Research Fund, is managed by a small committee of three persons—a nominee of the donor, the head of the clinical laboratory, and the house governor of the hospital—who meet fortnightly.

The researchers appointed have the following advantages: (1) They will work in very fine laboratories entirely on research work, but shoulder to shoulder with the hospital laboratory staff, who are doing the routine investigation work of the hospital. (2) They will be in touch with the clinical work of the hospital and especially with the "medical unit." (3) They will be working in a centre where unlimited clinical "material" may be found.

We hope to enlarge the Fund.

I am, Sir, yours faithfully,

E. W. MORRIS,
House Governor.

London Hospital, E., March 1st, 1926.

## THE MEDICAL EXAMINATION OF PASSENGERS TO AMERICA.

*To the Editor of* THE LANCET.

SIR,—The right to subject passengers landing on American soil to any form of medical examination cannot be denied. The procedure in 1924 and 1925 was interesting and instructive to myself, when I was present. Off Ellis Island the passengers were assembled and passed before the medical officer and other officials who were assisted by the ship's surgeons furnished with a complete list of passengers. On lying up at the quay the passengers were again assembled in the drawing-room. An American medical officer in uniform stood at a table; on the opposite side a steward, with a list of passengers. One by one we were called up. Coming at the end of the list, I had an excellent opportunity of observing the method employed. The medical officer had a small stick which he laid upon each eyelid and turned up the lids. Then the hands were held out for inspection, the spaces between the fingers being carefully scrutinised. During the examination of about one hundred first-class passengers, I noticed the medical officer dip his fingers in water twice and the stick once and wipe them on a towel: this seemed to leave something to be desired. The examination was obviously for trachoma and scabies. Some months later there was in the press an account of an action brought against the Ellis Island authorities on behalf of a lady who claimed to have contracted trachoma in one eye as a result of the examination.

I enclose my card, but my name is not for publication.

I am, Sir, yours faithfully,

SURGEON.

Feb. 25th, 1926.

## TWO CASES OF EMPYEMA:

### A CONTRAST AND A RECORD.

*To the Editor of* THE LANCET.

SIR,—These notes upon two cases are not presented as detailed clinical records, but the outlines are sufficiently full to permit comprehension of the facts.

CASE 1.—A woman in domestic service came under my care with the history that she had been ill for about a month with a pain on the right side just under the lower ribs. About the end of the first week of symptoms she called in a doctor, who continued to attend her for three weeks, but not feeling better she came home and I saw her. On examination I found the usual signs of pleuritic effusion on the right side and used the aspirator. This proceeding I repeated four times at intervals of about a week, evacuating on each occasion from 1 to 1½ pints of pus. Seeing that the case was not following a satisfactory course I advised a resection of a rib. The operation was quite satisfactory as to emptying the pleural cavity, but the after-treatment was tedious and very prolonged, and she is most probably an invalid for life.

CASE 2.—A man aged 35, a loose-jointed, flabby subject, came under my care a short time after Case No. 1. I found him suffering from all the symptoms of pneumonia on the left side; by the end of the first week he developed pleurisy with later effusion. After resort to the usual remedies for about a week I used the aspirator. I withdrew one pint of inodorous pus, and three days later I again used the aspirator and evacuated eight pints of pus at one sitting without, apparently, the least inconvenience to the patient. His temperature at that time, 103·6° F., fell to 100° and never again rose above it. From this point he made a rapid recovery, the heart regained its normal position, the respirations became natural, and the chest resonant all over; in three months, or a little more, from the beginning of his illness he resumed his employment. He is now a gardener doing real spade-work without effort, and a year later I found him a strong robust man.

In contrasting these cases I cannot resist the conviction that had the aspirator been resorted to at an earlier stage in Case No. 1 the woman would have had a reasonable prospect of permanent recovery. I think Case No. 2 goes a long way in support of this view. So far as I can ascertain, the evacuation of eight pints of pus at one sitting is a record performance in a case of empyema.

I am, Sir, yours faithfully,

J. CÆSAR, F.R.C.S.I.

Minster, Sheerness, Feb. 25th, 1926.

## INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 20TH, 1926.

*Notifications.*—The following cases of infectious disease were notified during the week:—Small-pox, 242 (last week 252); scarlet fever, 1825; diphtheria, 1165; enteric fever, 29; pneumonia, 1229; puerperal fever, 53; cerebro-spinal fever, 9; acute poliomyelitis, 2; encephalitis lethargica, 46; dysentery, 3; ophthalmia neonatorum, 99. There were no cases of cholera, plague, or typhus notified during the week.

*Deaths.*—In the aggregate of great towns, including London, there were 3 (1) deaths from enteric fever; none from small-pox; 116 (61) from measles; 13 (3) from scarlet fever; 65 (2) from whooping-cough; 50 (14) from diphtheria; 50 (9) from diarrhœa and enteritis under 2 years of age; and 76 (12) from influenza. The figures in parentheses are those for London itself.

**ROYAL MANCHESTER CHILDREN'S HOSPITAL.**—The ninety-sixth annual report shows that the management is faced with a heavy deficit (apart from the fact that £5020 is required for the new nurses' home), and this in spite of the fact that the ordinary income has been increased during the past few years. This implies the curtailment of valuable and necessary work and development. During the past year, as an experiment, accommodation has been provided for four private patients at fees ranging from 4 to 6 guineas a week. The arrangement does not reduce the number of ordinary beds and cots available, and it is thought that it may prove of benefit to many who are unable to pay heavy private nursing home fees, but wish to meet the full cost of hospital treatment. There was an increase in the number of patients treated during the year and also a marked decrease in the death-rate of the patients. A larger room and more lamps are to be provided for artificial sunlight treatment.

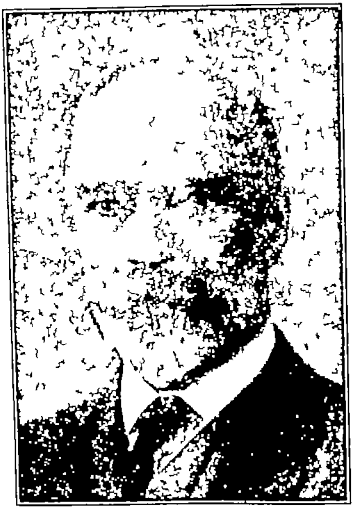
# Obituary.

## ARTHUR ROBERTSON CUSHNY, M.D. EDIN., M.A., LL.D. ABERD., F.R.S.,

PROFESSOR OF MATERIA MEDICA AND PHARMACOLOGY IN THE UNIVERSITY OF EDINBURGH.

By the death of Prof. A. R. Cushny the medical world loses an outstanding member, for he was a scientific authority of the highest reputation with much admirable and valuable research to his credit.

Born in 1866 at Speymouth, Morayshire, Arthur Robertson Cushny was the fourth son of the late Rev. John Cushny. He was educated in Aberdeen University, graduated M.A. in 1886 and M.B., C.M. in 1889, in which year he was the Thomson Fellow, and proceeded to the M.D. three years later. Thereupon he studied at Berne and Strassburg, and at the German University was appointed assistant to the professor of pharmacology in 1892–93. In the latter year he was elected professor of pharmacology in the University of Michigan, Ann Arbor, U.S.A., which post he retained till 1905, when he returned to this country on his appointment to the chair of Materia Medica and Pharmacology in the University of London. In London he remained till 1918, when he went to Edinburgh to succeed Sir Thomas Fraser. At Edinburgh he made considerable changes in his department, setting up an experimental laboratory and embarking with enthusiasm upon plans for the development of physiological research in its relations to pharmacology. These were in full development at the time of his sudden death.



PROF. A. R. CUSHNY.

(Photograph by Moffat, Edinburgh.

The life work of a scientist may be considered under three aspects. First, the actual additions to knowledge made by him; secondly, his power to inspire in others a love of research and to direct the energy thus aroused along profitable channels; and thirdly, the influence he has on the general development of his science. Prof. Cushny had an important influence on English medical science in all of these respects. First, the contributions which he made to the knowledge of pharmacology were invaluable, for he was one of the first to analyse the mode of action of digitalis on the heart. After establishing the general principles by animal experiments, he, in collaboration with his friend the late Sir James Mackenzie, carried out a series of observations on patients and showed the effect of the drug on the diseased heart. This fundamental work formed the basis for many of the important researches of Sir Thomas Lewis and others, who have during the past decade thrown so much light on the nature of heart disease. Prof. Cushny's work on diuretics also was notable, and in his monograph on the function of the kidney he brought forward the first coherent theory as to the mode of action of the kidney which at all accords with our modern knowledge of physical chemistry. Secondly, Prof. Cushny both in London and in Edinburgh showed that he had the power of inspiring research by others, and a number of the assistants whom he trained now hold posts in various parts of the Empire. He was a splendid trainer for young research workers, for he had an encyclopædic knowledge of his subject and also a very remarkable power of balanced judgment; to work under him was an education in accurate and scientific thought. Thirdly, the most significant aspect of Prof. Cushny's life work was the profound influence which he had on the development of pharmacology in this country. Unlike bacteriology, pharmacology did not start with a clear field, for our conceptions of the actions of drugs were (and are) distorted by all sorts of clinical traditions, some of them of great value and others mere relics of mediæval superstition. In the case of new drugs the search for the truth is hampered by the uncritical enthusiasm of those who are always seeking some new thing, and sometimes by commercial interests. Prof. Cushny's text-book, "Pharmacology and Therapeutics and the Action of Drugs," was the first comprehensive text-book of pharmacology to be published, and now in its eighth edition it is generally recognised as the most trustworthy and authoritative general text-book of its subject. It has had a profound influence on the development of pharmacology in this country and in America, for the author is severely critical, and has treated his subject as an exact science, refusing to admit as fact tradition unsupported by scientific evidence. This rigorous attitude, because it was based on wide knowledge and supported by an excellent power of judgment, has been of the greatest service to the science of pharmacology in its growth in difficult surroundings. His whole influence was directed towards making pharmacology an exact experimental science, which could serve as a secure foundation for the art of therapeutics. His work on digitalis, in which he first determined the fundamental principles by experiment and later applied this knowledge to clinical practice, is a model of the relation that he conceived should exist between pharmacology and therapeutics, but he always insisted that the essential duty of the pharmacologist was to get his data exactly correct, not permitting himself to be influenced by preconceived ideas as to what a drug was supposed to do.

Cushny was a frequent contributor to scientific literature, and we have great reason to be grateful to him at THE LANCET. Latterly he was joint editor of the *Journal of Pharmacology and Experimental Therapeutics*, and his last written work will be found in a series of lectures which he gave in the summer of 1925 under the Charles E. Dohme Memorial Foundation before the Medical School of the Johns Hopkins University, Baltimore. His subject was the biological relations of optically isomeric substances, and these lectures are now in the press.

With such success as a teacher it was certain that his services would often be sought by educational boards, and at different times he examined in his subject at the Universities of Oxford, Cambridge, London, Manchester, and Leeds, and also at the Conjoint Board of the English Colleges and at the entrance tests for the Indian Medical Service. He sat, also, on the Royal Commission on Whisky and other Potable Spirits in 1908, a Government inquiry which was much needed at a time when the trade in whisky was developing in a way that made the introduction of cheaply produced spirit a threat to public health.

Prof. Cushny's untimely death is an irreparable loss to English medical science, for he was for many years the senior pharmacologist engaged in research work in this country, and his strong personality made him the natural leader of his fellow scientists. He was still producing research work of first-rate importance, and his advice was being sought in all matters of general policy. To the medical school of Edinburgh his death is a particular blow; he always aimed at fostering the true scientific spirit amongst his students, who one and all as they worked with him esteemed him personally and felt the value of his encouragement and help.

Prof. Cushny's death came with great suddenness. He arrived home from London the day before his death, was taken ill during the night, and passed away on Feb. 25th at his home, Peffermill House, Edinburgh. He is survived by his wife and one daughter.

We have received the following tribute from Prof. W. E. Dixon, of Cambridge:—

"Prof. A. R. Cushny at the time of his death was the outstanding figure in pharmacology in this country. He was essentially a wise man, a man to whom one never appealed in vain for a valid criticism or an astute and considered opinion not only on all that pertained to the subject of which he was master, but on general principles in medicine, on questions of policy of organisation and education. His early training and the momentum which carried him through life was first derived from Oswald Schiedeberg, the founder of modern pharmacology, to whom Cushny acted for a time as assistant, and to whom he dedicated the early editions of his text-book, 'Dem Meister vom Schüller gewidmet.' The present generation have little understanding of the sacrifices which men like Cushny made to pursue their ideal. Nowadays, men fitted for research can obtain an ample wage, but in those days £100 per annum was affluence and it is small wonder that the few like Cushny, who for a time survive. leave a mark on history which is ineradicable. It was in Strassburg that his interest in cardiac irregularities and digitalis began, an interest which never ceased throughout life and which culminated in his book on digitalis published but recently. He first produced in animals the condition of auricular fibrillation and suggested that it was an unrecognised condition from which patients might suffer, but it was not till many years later that the condition was discovered in patients. His book on digitalis is essentially a description of the mechanism of the action of the drug on the mammalian heart; it is too modest in that, in his desire to be fair, Cushny lays too much stress on the work of other investigators, whilst the most valuable observations are those which were made or instigated by Cushny himself. Another great interest of Cushny throughout life was that of the kidney; he wrote many papers and finally a book on the subject. It is interesting to note that in one of his last papers he gave evidence for believing that caffeine acts as a diuretic by rendering the kidney more permeable to water just as phloridzin acts by making it more permeable to sugar, or phenyl carboxylic acid (atophan) by rendering it more permeable to uric acid. Another subject to which he gave a great deal of attention was the question of optically active isomers. He showed, for example, that the early specimens of synthetic adrenalin had only half the activity of the natural product, because the natural product con- [illegible] of the lævo-variety, whereas the synthetic substance was a mixture of equal parts of the two varieties. His experiments were continued with the hyoscyamines, hyoscines, nicotines, &c., in each case the activity occurring in only one isomer. Besides these he had many minor papers of interest; thus he drew attention to the convulsant action of the common nutmeg and showed that certain outbreaks of cirrhosis of the liver in cattle were due to senecio, a variety of groundsel.

"Cushny was a pioneer, he gave himself to pharmacology when it could not be said to exist in this country, long before it was known that the internal secretions largely governed the body's activity by means of alkaloidal-like substances. His work mainly consisted in investigating the mode of action of drugs, but his interest in the patient never ceased and in some of his researches he was associated with clinicians, the late Sir James Mackenzie, and others. Prof. Cushny just before his death was taking an active part for a reformed British Pharmacopœia; he regarded the Pharmacopœia as being edited on an entirely wrong principle which had tended to stereotype therapeutics on the lines of obsolete tradition with a resulting expenditure of money by the public on drugs of little or no value. Prof. Cushny possessed a great personality; it was only necessary to be with him to experience his wonderful charm and to understand how he inspired in his friends and pupils alike confidence and affection. It was to no small extent these qualities which enabled him to build a school of experimental pharmacology in Edinburgh. Cushny was a scholar, a teacher, and the best and most steadfast of friends; he passes to posterity as a pioneer of the science which he did so much to make, and leaves a great record of work of fundamental importance."

## JOHN CAMERON YOUNG, M.D. Glasg.

The death in Abyssinia of Dr. John Young, of Aden, closes the career of a great Scottish missionary. He had spent 32 years of his life in one of the most trying climates in the world. Yet he never spared himself and was never long off duty. From childhood he had learnt the meaning of hard work, for at the age of 10 he had to leave school to help earn his living. A few years later he was apprenticed to a joiner, and it was whilst working at this trade that he went through a religious experience which led him to attempt greater things. He made up his mind to be a missionary, and kept himself by vacation and evening work whilst studying medicine, arts, and theology at the University of Glasgow. Graduating as M.B., C.M. in 1882, he was appointed by the Free Church of Scotland to the mission of Sheikh Othman near Aden. Here he had to train his own staff of assistants—anæsthetist, dispenser, dresser—and for many years worked under great difficulties. In 1909 a hospital with nominally 100 beds was completed, the money for which he mainly raised himself; but soon this proved too small. Patients flocked from all parts of Southern Arabia and the annual list of operations mounted to more than 2000. Yet medical work was only part of Young's activities. At one time he took charge of the school, and some of his Arabian pupils distinguished themselves in after-life, though not many were converts. He acted as chaplain to the Presbyterian and Wesleyan troops of the Aden garrison, and during the war took charge of the European General Hospital, and was port health officer. "He was 'always a fighter,'" writes a colleague, "fighting the battles of the oppressed and helpless, fighting ignorance and disease, bad customs and habits, wrong beliefs. He was generous to a fault, sometimes overwhelmingly so, and no one had a kinder heart. In almost every country of the globe there are many who feel the world is poorer since John Young passed to his rest." Dr. Young was on holiday in Abyssinia for his health's sake when he died. But even there he was engaged in the work he loved, and he died, as he had wished, in harness.

# Parliamentary Intelligence.

## HOUSE OF COMMONS.

### Tuesday, Feb. 23rd.

### *War Pensions Administration.*

Mr. Walsh called attention to war pensions administration, and moved "That a select committee be appointed to inquire into the general administration and practice of the Ministry of Pensions, with special reference to the questions of final and erroneous awards, parents', dependants', and widows' pensions, the regulations governing the appointment and powers of area war pensions committees, advisory councils, regional officers, and special grants committees, the seven years' limit for claims in respect of pensions for death or disability due to war service, and the advisability of appointing an independent court of medical appeal for the hearing of appeals against decisions of the entitlement and assessment appeals tribunals." He said he would like to suggest the appointment of an independent medical tribunal to take into consideration, free from all prejudice, free from all predilections, free as far as possible from all knowledge of what had gone before, the cases that have been submitted against the entitlement and assessment appeal tribunals. Like other Members he had had a good many cases submitted to him, and in the big majority he had found nothing but fair treatment from the Department, whoever had been the Minister at the time, but there had been many cases where men complained that the doctor who was upon the assessment tribunal and the doctor who attended upon the entitlement tribunal was the same doctor who sat daily on their appeal tribunal.

Lieut.-Colonel Pownall moved the following amendment "That, having regard to the prolonged consideration of all aspects of pensions administration in connexion with the Great War which has been given by select and other committees of inquiry and by this House itself, it would, in the opinion of this House, be undesirable that the settled fundamental principles of war pensions administration embodied in Royal Warrant and statute, which have been maintained by successive Parliaments and Governments in recent years, should be reopened and be again made the subject of formal inquiry by a select committee of this House." He said that by the proposal of Mr. Walsh they would upset the whole of the pensions administration, although the late Minister of Pensions had admitted that 85 per cent. of the cases were well met by the existing laws or regulations. The motion would raise false hopes in thousands and tens of thousands, and it might be hundreds of thousands, of those whose claims had been fully investigated by the Pensions Appeal Tribunal This seemed to him to be very unfair What the country wanted was not a select committee of inquiry; what was wanted now was security and stability. He would welcome a decision to stabilise the present rates for a further period of three years, and it might well be for another period after that. He would like to see the number of medical boards reduced.

Colonel Clifton Brown seconded the amendment. As regards the medical boards no pressure in his experience was exercised on any doctor. When they were closing down cases, hard cases must arise, and the Ministry of Pensions, so far as he had followed its operations, had very wisely brought in a system of correction of errors. Any man who got worse was entitled to medical attention, and if it was found that any real mistake had been made—and he did not think that there were so many as some people thought—the error was corrected and the subsequent pension was adjusted to the state of health which the man had then reached. They must remember what wide effects the appointment of a select committee would have on ex-Service men throughout the country. There was no end to the time which it would occupy and no end to the number of cases which would be held up. As an ex-Service man who had spent three very happy years at the Ministry of Pensions, he thought that nothing could be more damaging to the interests of his fellow ex Service men at the moment and to the whole administration of pensions than the appointment of a select committee. He hoped the House would resist the motion.

Major Cohen said it seemed to him rather a terrible thing that seven years after the war ended, when they were all satisfied that at any rate some ex-Service men were not getting all they ought to get, the House of Commons should be forced to a party division on a matter of this kind. It seemed to him that they wanted a little of the Locarno spirit in the House of Commons. He asked the Minister if he could not see his way to grant a select committee, at any rate to deal more generously and more kindly with the representative body of ex-Service men—he meant the British Legion. Very reluctantly he felt he must vote against the Government.

Mr. Ellis Davies referred to the question of medical tribunals, and in particular appeal tribunals. It was essential that the gentlemen who, though members of the medical profession had, in fact, become Government officials, should not have the determining voice with regard to these pensions. He spoke with some experience of the Workmen's Compensation Act, and there were two diseases in which a good many mistakes were made—nervous disorder and heart disease. They were the two diseases of which the medical profession was at present most uncertain. Anyone who had to consult even a leading practitioner in London on either of those two diseases would be informed by those high authorities that with regard to nervous disorders and heart disease they were practically at sea even at the present day. These were the cases out of which most of the complaints with regard to medical tribunals arose. All these things showed the necessity for a thorough investigation into the conditions under which pensions were awarded.

Dr. Drummond Shiels said he found himself very much in sympathy with the remarks of Mr. Ellis Davies. The whole pensions system penalised the man who was plucky, the man who did not run to the field ambulance or the hospital on every occasion. A man might have worked, as many did, with heavy colds or chest complaints for months. He carried on and there was no entry in his medical sheet. He ultimately developed tuberculosis. His medical sheet was turned up and he was told "This was not contracted in the war because there is no record of your having been to the hospital with pleurisy or anything else." He wanted to put in a word for tuberculous ex-Service men who were not very satisfactorily treated in some ways. He put in a plea for the special diet allowance which they had some years ago. He supported the motion for a select committee.

Major Tryon (Minister of Pensions), replying to the debate, said that the overwhelming mass of corrections of errors took place through the normal channel; they were corrected when the men came up for treatment. There had been inquiry after inquiry and committee after committee, but the objection to upsetting all the work of the Pensions Department was that they could not now reopen all these questions. They could not change the system of compensation according to the extent of disablement to a system of final awards If it was decided to appoint a select committee they would have to stop at once the granting of final pensions to a large number of men who to-day were passing from the realms of anxiety and uncertainty to the knowledge that their assessment was assured They were not prepared to leave the matter to the risk of a select committee. It was not the policy of a Ministry to stand still All through it had been the Ministry which had taken the initiative in reforms. It was the Ministry which introduced the Correction of Errors Board on their own initiative. They wanted to settle this question amicably and to give security to the pensioner To give him that security they had stabilised his rates.

On a division the motion for the appointment of a select committee was rejected by 250 votes to 151. It being after 11 o'clock the debate on the amendment was "talked out."

### Wednesday, Feb. 24th.

### *Ministry of Pensions Vote.*

The House went into Committee of Supply on a vote of £1,192,000 for the salaries and expenses of the Ministry of Pensions, Mr James Hope in the chair.

Lieut.-Colonel Stanley (Parliamentary Secretary to the Ministry of Pensions) said that medical treatment, medical assessment of the disabled, the admission of claims, and the award of pensions, had proceeded without hindrance in accordance with the criteria laid down in the Royal Warrants, and if the cost had amounted to more than was estimated, the ex-Service men and their dependants had benefited. He thought that they were getting much nearer to accuracy of prognosis, but it was quite impossible to foretell with accuracy the operation during the year of very diverse factors. It was inevitable that a substantial minority of cases should still be found to be suffering from conditions that refused to yield to treatment, and that in some instances there should be a gradual deterioration. He referred in the main to the men suffering from such diseases as tuberculosis, chronic cases of acute bronchitis, organic heart disease, and paralysis. In such cases where a man was examined and found to be worse his pension had to be increased. But there was a very considerable off-set due to death and other causes. There was a large number of serious cases which must be provided for in hospitals, and some cases would always have to be so provided for. The excess expenditure on medical treatment was due entirely to the cost of treatment in hospitals being greater than was expected. The expenditure on other forms of treatment had declined. The number of out-patients during the past year had decreased, and that was a continuation of a process which had been going on for three years. There was also a decrease in the work of the medical examination of pensioners consequent on the increased stability of pensions. As a result there were fewer doctors employed, and fewer men had to travel to the medical boards. This meant a decrease on the score of expenses.

Mr. SPENCER said that from his experience of medical boards he should have been very pleased to find that sub-head of the vote swept away. In his opinion the medical boards had been a discredit to the Ministry and were among the worst institutions that had been set up. He knew of no body of men who differed more in their opinions regarding cases than the medical profession. The only board which could justly meet the requirements of all the people concerned would be a board in which the final decision was not given by medical men, but by some legal person who could weigh evidence after medical evidence had been given on both sides.

Dr. VERNON DAVIES said he was astonished to hear Mr. Spencer make such statements about the medical boards. He thought it was not in the interest of the pensioners to make them dissatisfied with the medical referees who were judging these cases. The hon. Member seemed quite prepared to accept the certificate of a panel practitioner, but when the same doctor was acting as a medical referee on behalf of the Ministry he seemed to think that the certificate must be wrong. Possibly it was wrong; doctors differed and disagreed, and when it came to an interpretation each man was entitled to his own opinion. But hon. Members who created dissatisfaction in the minds of the public with the decisions of these medical men were doing the pensioners a great disservice. Since the war a new state of mind had developed. If a man developed rheumatism six or seven years after war service it was said that that rheumatism must be due to war service; but people who had not been to the war developed rheumatism. Hon. Members should give medical men the credit for being honest in their opinions, and should try to convince the country that there were diseases with which the war had no connexion. Under the heading of Medical Treatment of Disabled Officers, Nurses, and Men, he noticed that the Minister was asking for an additional £216,000 which was roughly 10 per cent. of the original estimate. He should like a little more information why there had been this increase. One class of cases in which the Ministry might extend their efforts were the neurasthenia cases, which were becoming more and more troublesome and in some cases there were definite hardships.

Major TRYON (Minister of Pensions), replying to the debate, said that Dr. Vernon Davies had put the medical point of view in a speech which was of very great value, because it showed not only how difficult was the task of medical officers to deal with these questions, but it also brought home to the committee the obvious desire of the whole medical profession to deal fairly with cases of assessment and with pensions questions generally.

The vote was agreed to.

### *Tuberculosis in the Navy.*

Sir BERTRAM FALLE asked the Parliamentary Secretary to the Admiralty the number of naval ratings who were invalided during the period Jan. 1st to Dec. 31st, 1925, with tuberculosis; and how many of the cases were considered to be attributable to service.—Mr. DAVIDSON replied: The total number of ratings invalided for tuberculosis in 1925 was 217; of these, three were found to be attributable to the Service.

### *Hospital Accommodation at Sarafand.*

Mr. DAY asked the Secretary of State for Air whether the unsatisfactory hospital accommodation at Sarafand had yet been remedied, and in what manner.—Sir S. HOARE replied: The difficulties of hospital accommodation are being overcome by the conversion of existing buildings at Sarafand into a new hospital; the work is due for completion by March 31st next.

### *British Medical Association and Colonial Medical Appointments.*

Mr. DAY asked the Secretary of State for the Colonies if he was aware of the manifesto issued by the British Medical Association in regard to the acceptance by doctors of colonial appointments; and whether he would reconsider the new regulations with a view to consultation with the Association.—Mr. AMERY replied: I have seen this announcement which arises out of regulations recently issued for the East African Medical Service, and which was published before I had had an opportunity of considering the representations which members of the medical staff in East Africa wished to make to me as to the effect of these regulations on officers already in the Service. I have now received and considered these representations and have reached certain decisions with regard to the points raised. I have intimated to the British Medical Association that I am prepared to receive a deputation from them.

## THURSDAY, FEB. 25TH.

### *Miners and Nystagmus.*

Mr. SPENCER asked the Home Secretary whether he was aware that nystagmus was on the increase among coal-miners; [illegible]her he intended to give effect to the recommendation of the Medical Research Committee with regard to a higher standard of illumination by making it compulsory to provide the same.—Colonel LANE-FOX replied: The incidence of miners' nystagmus is still very heavy, but the total number of cases in 1924 was slightly less than in 1923; the number of new cases declined both in 1923 and 1924, and I hope will continue to do so. I expect before long to be able to fix a higher candle-power standard for flame safety-lamps. As regards electric safety-lamps, the present standard of candle-power is much higher than the standard for flame lamps, and I am advised that it is not yet practicable to raise it.

### *Death Certification.*

Mr. DAY asked the Minister of Health if he would consider amendment to the Death Certification Act, so as to cause the compulsory examination of the body before a death certificate was issued by a medical practitioner.—Mr. NEVILLE CHAMBERLAIN replied: The subject of death certificates is already under my consideration with other related questions, but I cannot see my way in present circumstances to introduce any legislation.

### *Lunacy Reform Report.*

Mr. DAY asked the Minister of Health when the Royal Commission on Lunacy Reform was likely to make its report.—Sir W. JOYNSON-HICKS replied: I understand that the Royal Commission hope to be able to present their report this summer, but it is not possible at present to give the precise date.

### *Grade A Milk and Pasteurised Milk.*

Lieut.-Colonel FREMANTLE asked the Minister of Health the number of producers holding licences to sell Certified Grade A (tuberculin tested) and Grade A milk respectively; and the number of cows whose product was sold under each designation, respectively.—Mr. NEVILLE CHAMBERLAIN replied: The numbers of producers' licences for Certified and Grade A (tuberculin tested) milk in operation in England and Wales at the present time are 96 and 97 respectively. The number of such licences for Grade A milk on March 31st, 1925 (the latest date for which figures are available) was returned as 110. The numbers of cows in the herds producing the first two grades of milk are approximately 3500 and 3600 respectively. No precise information is available as to Grade A herds, but I am advised that the number of cows in such herds may be roughly estimated at 2000 to 2500.

Colonel FREMANTLE asked the Minister of Health the number of firms or persons licensed to sell pasteurised milk and the estimated quantity sold annually of such milk.—Mr. NEVILLE CHAMBERLAIN replied: Licences for the sale of pasteurised milk are issued by local authorities. The latest available returns are those of licences in force on March 31st, 1925, and they give the number of pasteurising establishments as 62 and of other premises licensed to distribute as 370. I have not complete information as to the total quantity of milk which is being sold in England and Wales at the present time as pasteurised, but I am advised that, on a rough estimate, it may be taken to be between 15 and 20 million gallons per annum.

### *Bovine Tuberculosis and Man.*

Colonel FREMANTLE asked the Minister of Health if he had evidence that bovine tuberculosis is communicable to man by the consumption of tuberculous milk.—Mr. NEVILLE CHAMBERLAIN replied: Yes, Sir. I am advised that the positive conclusions of the Royal Commission on Tuberculosis on this subject have been confirmed by the subsequent work of many investigators at home and abroad.

### *Remuneration of Panel Practitioners.*

Lieut.-Commander KENWORTHY asked the Minister of Health whether the remuneration withheld from insurance practitioners under the powers in that behalf contained in the National Health Insurance (Medical Benefit) Regulations, remained in the central fund for eventual distribution amongst insurance practitioners, or whether it was applied in any other direction; and, in the latter case, how it was dealt with.—Mr. NEVILLE CHAMBERLAIN replied: Sums withheld from insurance practitioners in the circumstances referred to are not returned to the central pool for distribution among practitioners, but are carried to a special fund from which, under Article 21 (2) of the regulations cited, payments are made to insurance committees towards meeting exceptional expenses incurred by them in the administration of medical benefit.

### *Blind Persons.*

Mr. FRANK LEE asked the Minister of Health if he could give the number of blind persons in England, Scotland, and Wales; how many of these were between the ages of 50 and 70 years and receiving State pensions; how many councils, county or borough, had established workshops for the blind in their area; and how many persons were being trained or being found work therein.—Mr. NEVILLE CHAMBERLAIN replied: The number of blind persons in England and Wales on March 31st, 1925, was returned as 42,110. Of these 16,018 were between the ages of 60 and 70, of whom 12,872 were on Sept. 30th last in receipt of pensions under Section 1 of the Blind Persons Act, 1920. Only three local authorities in England and Wales have found it necessary to establish workshops under this Act, providing employment for 23 blind persons, while the remainder of the local authorities contribute towards the workshops established by voluntary agencies which provide employment for 2200 blind persons.

### *Medical Officers and Cold Storage.*

Mr. SPOOR asked the Minister of Health whether, in view of the situation about to be created by the prohibition of food preservatives, he would call for a return from medical officers of health indicating the extent, adequacy or otherwise of cold storage in their respective area; and what steps the Ministry proposed to take to encourage the use of refrigerators in the homes of consumers.—Mr. NEVILLE CHAMBERLAIN replied: I do not think it necessary to call for such a return as the hon. Member suggests, since information as to the cold storage accommodation of the country is already in the possession of the Government. As regards the second part of the question, I think that the hon. Member probably overestimates the extent to which the Preservatives Regulations will necessitate any increase in the facilities for domestic refrigeration in the home, and I do not propose to take any steps in the matter.

### *Insured Persons and Optical Benefit.*

Mr. VIANT asked the Minister of Health (1) if he was aware that the proportion of refraction cases referred by some panel practitioners to ophthalmic surgeons was extraordinarily high, while the number so referred by other panel practitioners was exceedingly low; and whether he would issue instructions to such practitioners which would insure greater uniformity; and (2) if he was aware that many cases of refraction, where no ocular disease existed, were being referred to ophthalmic surgeons, thereby seriously depleting the surplus funds of approved societies unnecessarily; and if he would make regulations limiting the cases in which reference to ophthalmic surgeons was permitted.—Mr. NEVILLE CHAMBERLAIN replied: It is no part of the duty of an insurance practitioner to refer applicants for ophthalmic benefit to ophthalmic surgeons, but where the practitioner is of opinion that a patient is in need of ophthalmic treatment or optical appliances he gives him, if desired, a written recommendation to be forwarded to his approved society. It then rests with the society to decide whether the application for ophthalmic benefit is to be granted, and, if so, whether the payment that they will make is to cover the cost of examination or treatment by an ophthalmic surgeon. I know of no good reason for seeking to limit the discretion of societies in the manner suggested, and in any event I have at present no power to make regulations for such a purpose.

Mr. DAY asked if the Minister of Health would seek the powers that were necessary

Sir K. WOOD: No, Sir. I have just said that it is thought better, at any rate at present, to keep the matter in the discretion of the approved societies.

Mr. RHYS DAVIES: Is the hon. gentleman not aware that the approved societies have no power to act in the way he has suggested, and in view of the fact that the Ministry of Health has no power to deal with the difficulty, will the Minister seek new powers?

Sir K. WOOD: I cannot agree with the hon. gentleman. I know that he has a great deal of knowledge upon this matter, but we are certainly advised that the approved societies themselves have the determination of this matter and are constantly doing so.

Mr. COMPTON: Is the hon gentleman aware that the State auditors of the Department refused to sanction payments unless the medical certificate is produced in the first instance and the approved societies have no discretion in the matter?

Dr. VERNON DAVIES: Are we to understand that the approved societies consult the ophthalmic surgeons or the doctor in charge of the case?

Sir K. WOOD: I think it is generally done by consultation between the approved society and the doctor on the panel.

### *Small-pox in Durham.*

Mr. WHITELEY asked the Minister of Health the number of notifications of small-pox in Durham county during the last four weeks; whether the necessary loans applied for had been granted in order to provide the essential equipment and staff to deal effectively with the cases; and whether there was any abatement of the epidemic.—Mr. NEVILLE CHAMBERLAIN replied: 905 cases of small-pox were notified in the county of Durham during the four weeks ended Feb. 20th. The application received from the county council for sanction to a loan is now under consideration. Fewer cases were notified last week than in any of the previous six weeks, but I am afraid that at present there are no signs of any substantial abatement of the epidemic.

### *Tuberculosis in the Air Force.*

Dr. VERNON DAVIES asked the Secretary of State for Air if he had formed any opinion as to how the conditions of service had caused or contributed to the disease of pulmonary tuberculosis in the 17 officers and men who had been invalided out of the Service during the last three years for which records were available which had been decided as attributable to the conditions of service; if pensions had been granted these officers and men on account of their disability; and, if not, what compensation had been given them.—Sir S. HOARE replied: In answer to the first part of the question, it would not be practicable to state in general terms or otherwise than by detailed explanation of case by case to what conditions of Service the disabilities of the 17 officers and men referred to were attributable. Analysis of the cases, eight of which were attributable to service in the war, has failed to reveal any particular condition of service which can be regarded as a common causal or contributory factor. As regards the remaining parts of the question, in 16 cases pensions have already been awarded; the remaining case is under consideration.

### *Deaths from Small-pox.*

Mr. SCRYMGEOUR asked the Minister of Health how many cases of small pox had been notified in the country for the year 1925; how many deaths from small-pox had been registered; and whether any other cause of disease helped to cause the death in the fatal cases.—Mr. NEVILLE CHAMBERLAIN replied: 5363 cases of small pox were notified in England and Wales during 1925, but this figure is subject to revision. Of the 9 deaths registered in which small-pox was entered on the death certificates, death was attributed solely to small-pox in three cases, while in the remaining six cases other causes were also entered on the death certificates.

## FRIDAY, FEB. 26TH.

### *Births and Deaths Registration Bill.*

Mr. TINNE, in moving the second reading of the Births and Deaths Registration Bill, said its object was to make more complete and effective the safeguards afforded by the law of registration in relation to the disposal of the dead with a view to eliminating as far as possible any risk or opportunity for the concealment of crime. Provision was made enabling local authorities to arrange in certain instances for the medical inspection of the body of a dead person and for regulating certain means of disposal. The Bill required still-births to be registered as an additional safeguard to infant life. An attempt had been made to remove one of the objections raised against previous Bills by eliminating the clause as to the universal medical inspection of bodies for burial. The new clause made it lawful for a county council, a county borough council, the Common Council of the City of London, or a metropolitan borough council, with the approval of the Minister of Health, to make arrangements that where a body had not been seen by a registered medical practitioner since death, the services of a registered medical pactitioner should be made available for verifying at the request of the coroner the death of anybody dying within the coroner's jurisdiction. The Bill contained nothing that was really controversial.

Lieut.-Colonel FREMANTLE traced the previous Parliamentary history of the subject, and said that the committee in 1893 recorded their conclusion that uncertified deaths should, as a class, cease to exist, and that means should be devised whereby a medical certificate should be obtained in every case. A Departmental Committee on the Law relating to Coroners reported in 1909 that the existing law as to death certification offered every opportunity of premature burial and every facility for the concealment of crime; that medical practitioners might certify merely on the information given by relatives; and that there was evidence that in many cases these certificates were carelessly and even recklessly given. Over and over again it had been shown that the cause of death was not completely notified in the certificate and that certificates gave a very inexact cause of death. Such a state of matters was dangerous from the point of view of possible carelessness giving shelter to crime and from the point of view of those who wanted to make those scientific statistics of disease from which so large an amount of legislation and administration was derived. For both reasons it was necessary to try to improve the certification of the cause of death. Each of the previous Bills with which he had been associated contained proposals that every death should be verified by a certificate from a medical man who had inspected the body after death. The proposal was unnecessary from the point of view of the dead person or the relatives, and the cost would fall on public funds. The only way was to trust the medical man. In at least 900 cases out of 1000 the medical man did all that was necessary.

Sir KINGSLEY WOOD (Parliamentary Secretary to the Ministry of Health) commended the Bill to the favourable consideration of the House. The Bill, he said, would put an end to all irregularities under the present system. It contained good machinery for preventing the surreptitious burial of a body under an authority which related to another body. A very important matter was that of still-births in which connexion a good deal of reform was needed. The requirement of the Bill that all such births should be registered would, he hoped, do much to prevent improper practices. The measure was a useful one, but it would need careful examination in committee.

Major-General Sir R. Luce said that though fully agreeing with the objects of the Bill which were in every way commendable, it did not seem to him that the Bill had the merit of doing very much towards carrying out the objects it had in view. The chief object of the Bill should be to prevent any person being buried without proper knowledge of the immediate cause of death being available. Two reasons had been referred to. One was the prevention of crime and the other was the prevention of premature burial. The methods in the Bill to secure these objects seemed to him totally inadequate. For a long time there had been a general body of feeling that it was absolutely essential to prevent those things, that there should be a compulsory view of the body after death and before burial by a qualified person, but the method suggested in the Bill seemed totally inadequate. What was wanted was some method by which a body could be examined so as to certify that it was dead and that there was no obviously violent cause of death. No attempt had been made in this case to utilise the most valuable opportunity presented by the Bill to increase the scientific knowledge of the cause of death. It was quite true that in many cases the medical man did not give an absolutely complete account of the cause of death owing to his desire not to hurt the feelings of the relations. The only method suggested here to get over that difficulty was that the certificate should in future be sent direct to the registrar, but it would be the duty of the registrar as at present, if the relatives asked for it, to send them a copy of the certificate, so that there would be no difference made to the medical man and there would be no confidential relations between him and the registrar any more than at present. There was another omission in the Bill and that was the question of the relations of the medical practitioner and the coroner in cases in which there was a certain doubt as to the cause of death, or in which there was some question of violence or accident. There ought to be either in this Bill or in the Coroners Bill, which was already in the House of Lords, some arrangement by which it was definitely stated that in cases of doubt on the part of the medical man as to the cause of death, or in cases where he believed the death was due to violence or accident, it should be his duty to inform the coroner in order that the coroner might at once take up the case. In these cases it should not be the duty of the medical man to give a certificate of death, but the duty of the coroner. Perhaps many of these points were very difficult to get over without raising the question of expenditure of money. It was undoubted that if the medical man had to visit in all cases the body after death he would have to be paid to do so. If that were so, he quite realised that it would be difficult to get any amendment of the Bill that would produce these effects, which he thought were absolutely essential to any improvement in the Registration Act. At the same time, as these objects were partially brought forward in this Bill and in so far as he hoped it might not prejudice a more complete Bill in the future, he did not propose actually to oppose the Second Reading.

After further discussion the Bill was read a second time without a division.

### Monday, March 1st.

### *Cost of Patients in Sanatoria.*

Mr. Naylor asked the Minister of Health the average weekly cost per patient, including maintenance, medicines, medical attendance, laundry, &c., in sanatoria controlled by local authorities or other institutions recognised by his department.—Mr. N. Chamberlain replied: The average weekly cost per patient in institutions approved by my department for the treatment of tuberculosis was 49*s.* 4*d.* during the year ended March 31st, 1924, which is the last year for which complete figures are at present available.

### *After-effects of Juvenile Encephalitis.*

Mr. Compton asked the Minister of Health whether any estimate could be given of the percentage of recoveries from juvenile encephalitis which had suffered mental or moral injury from that disease.—Mr. N. Chamberlain replied: I regret that at present there is not sufficient information available to enable such an estimate to be given.

### *League of Nations and Health.*

Mr. Groves asked the Minister of Health whether any report had been received by his department on the conference of members of the Health Committee of the League of Nations at The Hague on Jan. 4th to 7th; and whether the suggestions of the conference, as adopted, on the motion of Prof. Ricardo Jorge, would be carried out by his department.—Sir K. Wood replied: My right hon. friend has received the report of the British delegate, but the suggestions of the conference have not yet been transmitted by the Health Committee of the League of Nations. As soon as these suggestions are received they will be referred for consideration to the Committee on Vaccination which was recently appointed.

### *Midwives and Maternity Homes Bill.*

The Midwives and Maternity Homes Bill was read a second time.

### Tuesday, March 2nd.

### *Encephalitis Lethargica.*

Mr. Ammon asked the Minister of Health whether the Government was inclined to view favourably the offer received from Dr. Damoglou to place at the disposal of his Ministry a method of treatment of cases of encephalitis lethargica.—Sir K. Wood replied: The answer is in the negative.

### *Nursing Homes Registration.*

On the motion of Colonel Gibbs (Treasurer of the Household) a Select Committee was appointed to consider and inquire into the question of the inspection and supervision of nursing homes and to report what legislation, if any, was necessary or desirable for the purpose. Sir Cyril Cobb, Dr. Vernon Davies, Sir Leolin Forestier-Walker, Colonel Hurst, Sir Richard Luce, Mrs. Philipson, Major Price, Dr. Salter, Miss Wilkinson, and Mr. C. H. Wilson were nominated members of the Committee.

## Medical News.

University of London.—A meeting of the Senate was held on Feb. 24th, Prof. E. A. Gardner, the Vice-Chancellor, being in the chair.—Prof. C. A. Lovatt Evans F.R.S., was appointed to the Jodrell Chair of Physiology tenable at University College. Since March, 1922, he has been University Professor of Physiology at St. Bartholomew's Hospital Medical College. During this period he published Recent Advances in Physiology (1925) and was editor of Bainbridge and Menzies' "Essentials of Physiology" (1925).—Dr. G. V. Anrep was appointed to the University Readership in Physiology tenable at University College. He was educated at the University of Dorpat and at the Medical Faculty of the University of Petrograd. From 1917–20 he was senior assistant in physiology at the Institute of Experimental Medicine of Petrograd, and in 1920 he was appointed assistant and in 1923 senior assistant in physiology at University College, London. He has been awarded the Schäfer Prize and the Julius Mickle Fellowship (1924–25) for his research work in this University. His published work includes numerous articles in the *Journal of Physiology* (1912–25), Proceedings of the Royal Society (1923–25), and in *Heart.*—The title of Emeritus Professor of Obstetric Medicine at University College was conferred on Dr. H. R. Spencer.—The following were appointed Fellows of University College: Mr. James Thornton Carter, Prof. H. B. Fantham, Mr. Morris Ginsberg, Prof. Yaroslav Heyrovsky (of Prague), Dr. A. G. Levy, and Mr. G. Udny Yule, F.R.S.—The following were appointed Fellows of King's College: Sir James Kingston Fowler and Prof. William Wilson, F.R.S.—Dr. H. L. Eason has been reappointed as the representative of the University on the General Medical Council.

Royal National Orthopædic Hospital.—A festival dinner in aid of the funds of this hospital was held at the Hotel Victoria, London, on Feb. 24th, when H.R.H. Prince Henry, the President of the institution, presided over a large gathering assembled to promote the fund for the provision of additional beds and of an extension of the out-patient department. Mr. Herbert West, chairman of the special committee appointed to organise the fund, stated that of the sum aimed at—namely, £87,500—£40,000 had already been received, with the result that the enlargement of the buildings in Great Portland-street was being undertaken, while it was hoped that, as further support came in, the first unit of the country branch at Brockley Hill could be proceeded with. Following on this statement Prince Henry, in proposing the toast of the hospital, pointed out the national importance of the work that it had already done since its foundation in 1838. At its central departments, both in-patient and out-patient in London, as also at its Stanmore branch in the country, the preventive and curative sides of orthopædic surgery were being steadily carried on, he said, by a medical staff which included many of the greatest names in orthopædic surgery. He laid stress on the need for the development of the country branch, because continuous treatment was necessary in those cases, while in the open air the children enjoyed "all the natural sunshine which our climate permitted." He outlined the extensive nature of the activities of the hospital and stated that the need for school education concurrent with surgical treatment had been fully recognised, for the hospital had schools both at Great Portland-street and at the country branch, which were staffed by fully qualified and certified teachers. He concluded a clear exposition of the labours and deserts of the institution by an acknowledgment of the sympathetic coöperation which had been obtained from health and education authorities, from infant welfare workers, and from Red Cross. The Spanish Ambassador, who supported the toast, drew an eloquent analogy between the action of Christian kings, queens, and princes in the middle ages in their fights for the Cross to the crusades against disease now regularly led in Europe, and especially in England and Spain, by the Royal Houses and their scions. Mr. Reginald McKenna, treasurer of the hospital, responded to the toast with an ingenious suggestion that donations to the hospital were really investments, and other speakers included the Earl of Denbigh, the Bishop of St. Albans, Major-General J. E. B. Seely, and Sir Squire Sprigge. At the conclusion of the proceedings Prince Henry announced that £7500 had been subscribed at the dinner.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—On March 11th, at 5 P.M., in the lecture-room of the Medical Society, 11, Chandos-street, London, W., Colonel F. E. Fremantle will deliver a lecture on the Economics of Public Health. This lecture will be open to all members of the medical profession. On the same day, at 5 P.M., Mr. E. T. C. Milligan will give a special demonstration in clinical surgery at St. Mark's Hospital. This will be free to members of the Fellowship and holders of tickets for its general course. There will be a special course in gynæcology at the Chelsea Hospital for Women, beginning on March 8th and lasting for three weeks. Operations, lectures, and demonstrations will be given during the daily sessions. The daily afternoon demonstrations on the Diagnosis and Treatment of Diseases of the Eye continue throughout the week at the Royal Eye Hospital, beginning at 3 P.M. On March 15th the Hampstead General Hospital will begin an afternoon course (1.30–6) for the benefit of general practitioners. The daily sessions will include surgical and medical demonstrations and lectures, and the course will last for a fortnight. The London School of Tropical Medicine begins a series of eight clinical demonstrations on March 16th, which will continue for four weeks on Tuesdays and Thursdays at 2 P.M. Copies of all syllabuses, of the general course programme, and of the *Post-Graduate Medical Journal* may be had on application to the Secretary of the Fellowship, at 1, Wimpole-street, London, W. 1.

BRITISH PHARMACOPŒIA.—A conference took place on Feb. 23rd between the Pharmacopœia Committee of the General Medical Council and representatives of societies and public bodies interested in the revision of the Pharmacopœia. The following delegates were present: Dr. Smith Whitaker and Dr. A. W. Adams (Ministry of Health); Dr. H. H. Dale, F.R.S., and Lieut.-Colonel Sir David Prain, F.R.S. (Royal Society); Sir W. Hale-White and Prof. A. J. Clark (Royal Society of Medicine); Prof. T. R. Elliott, F.R.S., and Sir Walter Fletcher, F.R.S. (Medical Research Council); Dr. E. Lewis Lilley and Dr. J. W. Bone (British Medical Association); Mr. P. F. Rowsell and Mr. Edmond White (Pharmaceutical Society); Prof. A. R. Cushny, F.R.S. (since deceased), and Prof. W. E. Dixon, F.R.S. (Physiological Society); Prof. F. G. Donnan, F.R.S. (Chemical Society); Mr. A. B. Rendle, F.R.S., and Dr. A. T. Gage (Linnean Society); Mr. H. Todd and Mr. W. J. Hardy (Northern Ireland Pharmaceutical Society); Mr. G. A. McLean Lee and Mr. J. Smith (Southern Ireland Pharmaceutical Society); Mr. A. C. Chapman, F.R.S., and Mr. E. Hinks (Society of Public Analysts). The President outlined the history of the past issues of the British Pharmacopœia, and the present position as regards its revision. He mentioned that the Dominion of Canada had made a suggestion which might result in arrangements being made for the fuller consideration of special Canadian requirements, and said that it was probable that if anything was done on these lines similar arrangements would have to be made for ascertaining the special requirements of other parts of the overseas Dominions, such as India, Australia, and South Africa. The delegates from the societies brought forward certain proposals concerning the method of revision, and many suggestions on the subject were offered. At the conclusion of the conference the President stated that these proposals and suggestions would be carefully considered by the Pharmacopœia Committee at a meeting which would take place about the middle of March, after which he would ask the delegates to meet the Pharmacopœia Committee again.

ROYAL INSTITUTION.—On Friday, March 12th, Sir J. J. Thomson will lecture at 9 P.M. on Radiation from Electric Discharges.

IT is reported that Dr. R. Gordon Craig, of Sydney, has given £20,000 to found a Fellowship in Urology in the University of Sydney.

WEST KENT MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society will be held at the Miller General Hospital, Greenwich, S.E., on Friday, March 12th, at 8.15 P.M., when Mr. C. A. Joll will read a paper on Modern Gastric Surgery.

ROYAL SOCIETY OF ARTS.—Amongst forthcoming lectures are three on Thermometry by Mr. W. F. Higgins, M.Sc., at 8 P.M., on March 15th, 22nd, and 29th, and one on Women and Children in Indian Industry, by Lady Chatterjee, D.Sc., on March 19th, at 4 P.M.

ROYAL SANITARY INSTITUTE.—A sessional meeting is to be held at the Town Hall, Hastings, on March 12th and 13th. On Friday, at 8 P.M., Prof. H. R. Kenwood will give a semi-popular lecture called a City of Health. On Saturday, at 10.30 A.M., a discussion on Mothercraft and Fathercraft will be opened by Dr. G. R. Bruce, Miss Hester Viney, and Dr. J. Fenton. School clinics, welfare centres, and other places of interest will be visited.

EPSOM COLLEGE.—The Council of Epsom College will shortly award a St. Anne's Home Scholarship of the value of £18 a year. Candidates must be between the ages of 7 and 12, and must be the orphan daughters of duly qualified medical men who have been for not less than five years in independent practice in England or Wales. Particulars can be obtained from the Secretary, at the office of the College, 49, Bedford-square, W.C. 1.

AMONG the works announced for publication this spring by Messrs. Martin, Hopkinson and Co., Ltd., is a book called "Medical Aspects of Birth Control," which contains contributions from Dr. R. C. Buist, Dr. Letitia Fairfield, Dr. Arthur Giles, Prof. Leonard Hill, F.R.S., Dr. Crichton-Miller, Sir Arthur Newsholme, Sir John Robertson, and Dr. Mary Scharlieb, and is edited by the Rev. Sir James Marchant.

UNIVERSITY OF BASLE: LECTURES BY PROF. BRAMWELL.—At the invitation of the University authorities Prof. Edwin Bramwell, of Edinburgh, gave a series of lectures before teachers and students between Feb. 15th and 27th. Selected Chapters of Neurology was his subject, and the lectures were greatly appreciated. Prof. Staehelin, of the Basle Medical Faculty, in a vote of thanks to Prof. Bramwell, remarked that science is international and that every worker has access to the scientific literature of other countries. But the scientists of different nations have different ways of approaching and solving their problems, and nothing is more interesting and fruitful than to observe scientific workers of other countries handling the problems of their own sphere. Prof. Bramwell impressed his audience with the feeling that much can be learnt and gained from the English outlook in clinical medicine.

"BRENTHOL H" AND A DYE-WORKER'S DEATH.—An adjourned inquiry into the cause of the death of James Lee (41), Rochdale, who was employed at a kid-glove dye-works, Middleton, was held on Feb. 24th by the coroner, Mr. W. W. Surridge, at the Manchester City Coroner's Court. The firm at which Lee worked used a substance known as "Brenthol H," and it was suggested that fumes arising from the mixture of this substance with soda used in the process of dyeing had affected Lee, who died at the Manchester Royal Infirmary on Feb. 7th. The post-mortem showed that death was due to toxic jaundice. No such case has hitherto been recorded. The coroner said that as there was not sufficient evidence to show what were the prevailing conditions which led to the man's death he would return an open verdict.

AMALGAMATION OF THE DUBLIN HOSPITALS.—At the annual meeting of the Incorporated Orthopædic Hospital of Ireland, Mr. R. C. B. Maunsell, President of the Royal College of Surgeons in Ireland, stated that the scheme for the amalgamation of at least five of the Dublin hospitals was in abeyance in consequence of difficulties created by the question of the Medical Register in the Free State. The Rockefeller Foundation was about to grant a large sum when this question arose and the negotiations were broken off pending a settlement. The five hospitals concerned—Sir Patrick Dun's, the Adelaide, Mercers', the Meath, and the City of Dublin—have agreed in principle to amalgamation and the erection of a new hospital of 750 beds at a cost of about £750,000. This would be 100 beds more than the present aggregate, and it is estimated that the existing institutions could be sold for £350,000.

The Hôpital des Enfants Malades, 149, rue de Sèvres, Paris, is to hold a special vacation course from April 7th to 17th on the Diseases of Children

**Hawick Cottage Hospital.**—Lady Violet Astor has dedicated an additional wing which she has provided as a memorial to her brother, the Hon. G. W. E. Elliot, who was killed in action in 1917. The new wing, which will be used for orthopædic and electrical work, includes two private wards.

**Printers' Convalescent Home.**—Lord Riddell on Feb. 20th opened the Hermitage Convalescent Home for the Printers' Medical Aid and Sanatoria Association at Hastings. The Association has been very active since 1909, and the income has grown beyond all optimistic expectation. For the extensive benefits offered the members pay only a penny a week. Last year there were 112 convalescent home cases and 70 sanatoria cases.

**The Site of Bethlem Hospital.**—Subject to Parliamentary sanction, Lord Rothermere has purchased the site of Bethlem Hospital in Southwark for £155,000. The area of between 14 and 15 acres is to be converted into a playground and park to be known as the "Geraldine Mary Harmsworth Park" as a memorial of the late Mrs. Harmsworth, the mother of Lord Rothermere and the late Lord Northcliffe.

**The late Dr. E. S. Tresidder.**—The death of Dr. Edward Stanley Tresidder took place on Feb. 23rd at his residence at Askern, near Doncaster, in his sixty-seventh year. A student at Guy's Hospital, London, he qualified M.R.C.S. Eng. in 1882 and L.R.C.P. Lond. a year later. He had been in practice at Askern for about 12 years and had been divisional surgeon of the Askern Nursing Home since its inception in 1917. In recognition of an active interest in ambulance work stretching over more than 35 years, he was made an honorary associate of the Order of St. John of Jerusalem about two years ago. Dr. Tresidder was the second son of the late Surgeon-General J. N. Tresidder, I.M.S.

**Brighton, Hove, and Preston Dispensary.**—With reference to the Hove branch, which is known as the Hove Hospital, it was stated at the annual meeting held recently that Mr. Bernhard Baron had given £2500 to defray the cost of a new wing, in memory of his wife. This probably meant an addition of ten beds, and the cost of running the hospital would be increased from £1000 a year to £5500 a year. Hove, with its population of 46,000, only subscribed £825 annually. For the institution as a whole the ordinary expenditure was in excess of the ordinary income by £804. Large increases of all classes of patients were recorded during the year.

**Sussex Maternity and Women's Hospital.**—This institution at Brighton is flourishing. Only a few years ago it removed from its old inadequate premises, and now, despite the opening of an additional ward, still further room is wanted. During 1925 238 women were treated as in-patients, 385 mothers received attention at childbirth, 3686 out-patients attended, 1796 examinations were made in the antenatal clinic, 1080 homes were visited by the nurses, 73 patients were accommodated in the separate wards for private maternity patients, and 55 were admitted into other wards at the Hove branch. The accounts show a strong financial position; the excess of income over expenditure in 1925 was £2190.

**International Society of Medical Hydrology.** This year this society is to hold its annual meeting in Czecho-Slovakia from April 16th to 20th. A varied programme has been arranged, including visits to Karlsbad, Marienbad, Franzensbad, Pistyan, and the health resorts of the Tatra mountains. There will be papers and discussions, amongst others, on the following subjects: Endocrine Deficiency and Spa Treatment, Dr. M. Porges (Marienbad); the Treatment of Disorders of the Liver by Waters and Baths, Dr. Kraus and Dr. H. Simon (Karlsbad); the Balneological Treatment of High Blood Pressure, Dr. Pflanz (Marienbad); the Treatment of Chronic Rheumatic Affections by Mud Baths, Dr. L. Schmidt (Pistyan), Prof. A. Vinaj (Andorno), Prof. E. Astori (Abano), and Dr. E. Tommasi (Agnano); the Care of Medicinal Springs, Dr. Zörkendörfer (Franzensbad). The medical faculties of the Universities of Prague have arranged to receive the society, and the Czecho-Slovakian and other continental railways have offered concessions. Members of the medical profession other than members of the International Society will be made cordially welcome if they wish to join this study-tour to Czecho-Slovakia. Full particulars of the journey, programme, and facilities may be had from the hon. secretary, Dr. E. P. Poulton, at 36, Devonshire-place, London, W. 1.

**Manchester Royal Infirmary.**—The post-graduate lectures at the Royal Infirmary for the second half of the year 1925–26 began on Tuesday, March 2nd, at 1.15 P.M., when Dr. F. Craven Moore lectured on the Diagnosis of Nephritis. From then until May 21st (except at Easter) there will be lectures by members of the Royal Infirmary staff on Tuesdays and demonstrations of clinical cases and of medical methods on Fridays.

**Manchester University's Shrove Tuesday "Rag."** As a result of the University's Shrove Tuesday "rag" the Manchester and Salford Hospitals will receive this year about £11,000. The sums collected in previous years were £656 in 1922, £1033 in 1923, £2856 in 1924, £6023 in 1925. This year's collection exceeds the sum raised by the University of Glasgow, which was £10,560. The street collecting boxes yielded £6004, and the publication "Rag Rag" with its advertisements and sales realised £3700.

**Manchester Northern Hospital for Women and Children.**—At the annual meeting it was stated that the number of in-patients during last year was 220 in excess of the previous year and also that the hospital was not in debt. The hospital is situated in the midst of an ever-growing and populous neighbourhood, and its present accommodation has become quite inadequate. It has been resolved to erect a new hospital at a cost of £150,000. A site covering 10,655 square yards has been given by the President, Sir Edward Holt, and plans for the new hospital have been prepared. There are now in the hospital 22 beds for women and 50 cots for children, and in the new building it is proposed to have 220 beds. Last year 1218 persons were treated in the wards and 4278 in the dispensary. Towards the £150,000 required the committee has accumulated over £35,000, and the general public will be appealed to for the remainder. Amongst the subscriptions received are £5000 from Sir Edward Holt, Bleachers' Association £2000, R. S. Bodington £1000, Groves and Whitnall Ltd. £1000, Lady Holt £1000, and W. Morton Philips £1000. Over £16,000 has been allocated from the general funds of the hospital.

**The late Dr. J. Derham-Reid.**—Dr. James Derham-Reid, who died of pneumonia on Feb. 17th at the age of 17, had lived in Bolton nearly all his life and is said to have had one of the largest practices in Lancashire. He studied medicine at the Manchester Medical School and at the Middlesex Hospital, London, and after qualifying as M.R.C.S., L.R.C.P. in 1905, he practised for a time in Walkden. Then he moved to the Daubhill district of Bolton, where he became very popular. The affectionate esteem in which he was held by those who live in the district was shown in a remarkable and spontaneous manner at his funeral on Feb. 23rd. Representatives of all sides of the life of the neighbourhood began to assemble at the church an hour before the service began, and the blinds in the shops and houses in the neighbourhood were drawn. Dr. Derham-Reid joined the R.A.M.C. (Territorial Force) in 1915, was promoted to the rank of major, and won the Military Cross. He leaves a widow and six young children.

**Glasgow Royal Cancer Hospital.**—In the new X ray department elaborate precautions have been taken to counter the penetrative power of the Erlangen rays, and the walls of the X ray rooms have an ample coating of lead, which is not only the cheapest metal, but that which offers the greatest resistance to the penetrative rays. In the operator's room 17 lb. of lead per square foot are used as a lining from floor to ceiling, and in order that a patient may be kept under constant observation, windows of specially prepared glass of a high degree of protective power have been inserted. Sir G. T. Beatson, who has been surgeon to the hospital for over 30 years, has written an interesting pamphlet descriptive of the building.

**The late Dr. J. A. Sutherland.**—The interment of Dr. John Alexander Sutherland took place at Cleckheaton Old Cemetery on Feb. 21st. Many medical colleagues were present and various institutions with which he was connected were represented, including the North Bierley Joint Hospital, of which he had been medical superintendent ever since its foundation, and the St. John Ambulance and Nursing Division Corps from Spen Valley. Graduating in medicine at the University of Edinburgh in 1878, Dr. Sutherland served as assistant surgeon in the Leith Hospital, and as house physician at the Royal Infirmary, Edinburgh. Besides being physician to the North Bierley Joint Hospital he was also medical officer of health for Cleckheaton. At the time of his death he was in his seventieth year. Dr. Sutherland has been described as "a typical Scotsman, who, despite his long residence in the West Riding, never entirely lost the accent of his native land." Well known to all in the Spen Valley, he was affectionately called "the old doctor," and his death will leave a big gap in the intimate life of the district.

**PEMPHIGUS NEONATORUM.**—The Ministry of Health has approved the resolution of the Manchester City Council ordering that pemphigus neonatorum be classed as a notifiable infectious disease from March 10th to June 30th of this year.

**ST. THOMAS'S HOSPITAL.**—Three popular lectures on physics are to be given at the hospital on March 9th, 23rd, and 30th, at 5 P.M. The first, on the Nature of Human Speech, will be given by Sir Richard Paget. Four lectures on the Importance of Vitamins are to be given on March 11th, 12th, 15th, and 16th, at 5 P.M., by Prof. R. H. A. Plimmer.

**DONATIONS AND BEQUESTS.**—Mr. Alfred Shuttleworth, of Eastgate House, Lincoln, left large bequests to servants and dependants, and £1000 to the Lincoln County Hospital, and £1000 to the Lincoln General Dispensary.—Major David Milne, Dundee, left £1000 each to the Royal Victoria Hospital, Dundee, and the Dundee Royal Infirmary, and £500 to the Dundee Sick Poor Nursing Society.

**MIDDLESEX HOSPITAL.**—A scientific exhibition and demonstration in the research departments of the hospital and medical school is to be held on Wednesday, March 10th, from 9 P.M. to 11.30. From that time until March 16th the exhibition of ultra-violet radiation apparatus and other electro-therapeutic apparatus in the evacuated wards of the hospital will remain open between 11 A.M. and 6 P.M. daily. Admission will be free, on presentation of a visiting card, to members of the profession and others directly interested.

**CONFERENCE ON TUBERCULOSIS.**—The Tuberculosis Society and the Society of Superintendents of Tuberculosis Institutions are to hold a joint meeting at Cambridge from March 25th to 27th. Amongst those who will give addresses are Dr. James Crockett, Dr. G. Marshall, Sir Humphry Rolleston, Sir StClair Thomson, Prof. Edgar Collis, Prof. Lyle Cummins, and Dr. H. de Carle Woodcock. A limited number of rooms is available at St. Catherine's College. Information may be had from Dr. F. J. Blackmore, Tuberculosis Dispensary, Maxey-road, Plumstead, S.E. 18.

**VENEREAL DISEASE AND THE MERCHANT SERVICE.**—The British Social Hygiene Council held a conference on Feb. 25th on the welfare of the mercantile marine in the Port of London, with special reference to the provision of facilities for recreation. Mr. Greaves-Lord, K.C., M.P., took the chair, and many philanthropic societies were represented. The Chairman said that venereal disease amongst seamen was a difficult problem. They were long from home and found special temptations to vice on their return, and counter-attractions were inadequate. Miss Agnes Weston had shown what missions could do, but not every seaman was amenable to them. Mr. Cuthbert Laws said that seamen should not be treated as children; they were just as sophisticated nowadays as other working men. Mr. Leonard Bowden, speaking for Mr. Havelock Wilson, of the Seamen's and Firemen's Union, said that excellent work had been done for many years by the union. It was necessary to get rid of the idea that a cup of coffee in a draughty, white-washed room was a sailor's idea of a good time in port. There ought to be a club on every ship, and recreation grounds should be available at all times for men coming ashore. Mr. E. B. Turner said that what the sailor needed specially was recreation. Organised recreation was mainly responsible for a reduction of the figures for venereal disease amongst troops at Aldershot from 327 per 1000 in 1885 to 30 in 1913. Athletic clubs should welcome seamen as visitors or spectators; a love of sport must be implanted. Fleet-Surgeon W. E. Home said that there were two sides to the question; lack of self-control amongst civilians must not be forgotten. If sailors could not talk to good women in port they would talk to a bad one. In the U.S.A. a scheme had been started in which attractive and able women of character set themselves to organise entertainment. Admiral Tupper said that young men should go on board ships in port and persuade the sailors to come ashore and play games. Mr. Ganley advocated sexual education in elementary schools. Mr. Barker pointed out that existing societies were doing good work, which was only limited by lack of funds. Mrs. Neville Rolfe, secretary of the British Social Hygiene Council, made three propositions—that municipal authorities should provide recreation facilities for sailors coming into port; that retired seafaring men should coördinate such facilities in their ports and encourage seamen to use them; and that decent citizens should open their homes to men on whom their prosperity often depended. A resolution was adopted advocating coöperation by the various organisations concerned.

# Medical Diary.

## SOCIETIES.

THE ROYAL SOCIETY, Burlington House, Piccadilly, W.

THURSDAY, March 11th.—4.30 P.M. *The following papers will be read:* J. A. Campbell: The Effects of Ultra-Violet Radiation upon the Metabolism of Healthy Subjects. (Communicated by Dr. Leonard Hill.). E. Ponder: A Study of Certain Forms of Inhibition and Acceleration of Hæmolysis. (Communicated by Sir E. Sharpey Schafer.) S. B. Schryver and H. W. Buston: The Isolation of Some Undescribed Products of Hydrolysis of Proteins. (Communicated by Sir John Farmer.) *Papers to be read in title only:* A. W. Greenwood and F. A. E. Crew: Studies on the Relation of Gonadic Structure to Plumage Characterisation in the Domestic Fowl. (Communicated by Prof. R. C. Punnett.) E. P. Cathcart and W. A. Burnett: The Influence of Muscle Work on Metabolism in Varying Conditions of Diet. E. Fischer: The Heat Liberated by the Beating Heart. (Communicated by Prof. A. V. Hill.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY, March 8th.—5 P.M., WAR, at the Royal Army Medical College, Grosvenor-road, S.W. Demonstrations on Recent Work on Problems of Hygiene by Surgeon-Commander T. B. Shaw, R.N., and officers of the Hygiene Department, Royal Army Medical College.

TUESDAY.—5.30 P.M., SURGERY, MEDICINE, ELECTRO-THERAPEUTICS, and THERAPEUTICS. Discussion: The Treatment of Exophthalmic Goitre (contd.). 8.30 P.M., PSYCHIATRY. Dr. Thomas Beaton: The Clinical Relationship between Psychological Disorders.

WEDNESDAY.—5.30 P.M., SURGERY, MEDICINE, ELECTRO-THERAPEUTICS, and THERAPEUTICS. The Treatment of Exophthalmic Goitre (conclusion).

THURSDAY.—5.30 P.M., TROPICAL DISEASES AND PARASITOLOGY. Dr. J. Gordon Thomson: Pseudo Parasites of Man. Mr. J. Ramsbottom: The Classification of Pathogenic Fungi. 8 P.M., NEUROLOGY, at the National Hospital for the Paralysed and Epileptic, Queen square, W.C.

FRIDAY.—5.30 P.M. (Cases at 5 P.M.). CLINICAL. Dr. Dorothy Hare: Rheumatoid Arthritis with Multiple Fibrous Nodules. Dr. L. S. T. Burrell: Charcot's Joint. Dr. Bernard Myers and Mr. Rodney Maingot: Splenectomy for Three Cases of Essential Thrombocytopenic Purpura Hæmorrhagica. Dr. Saxby Willis: Sarcoma of Thorax. Dr. Chandler: Diabetes in a Child associated with Pancreatic Cyst. 5 P.M., OPHTHALMOLOGY. Clinical Meeting at the Royal London Ophthalmic Hospital, City-road (Moorfields), E.C.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, March 8th.—8.30 P.M., Discussion on Obscure Pyrexia in Adults, to be introduced by Sir Thomas Horder, Bart., and Dr. C. E. Lakin.

BIOCHEMICAL SOCIETY.

SATURDAY, March 13th.—2.15 P.M. (In the Biochemical Department, University College, Gower-street, W.C.). C. R. Harington: Chemistry of Thyroxin: (*a*) Method of Isolation from the Thyroid Gland. (*b*) Constitution and Synthesis of Iodine-free Thyroxin. H. J. Channon: Some Experiments on the Biological Significance of Squalene (Spinacene). H. J. Channon and G. F. Marrian: An Unidentified, Unsaturated Hydrocarbon Occurring in Mammalian Liver. I. M. Heilbron: The Chemical Nature of Squalene (Spinacene). F. H. Carr and E. A. Price: Colour Reactions Attributed to Vitamin A. H. Jephcott and A. L. Bacharach: Studies in the Vitamins of Cod-Liver Oil, Part I. H. S. Raper: The Production of 3:4 Dihydroxyphenylalanine from Tyrosine by the Action of Tyrosinase. R. K. Cannan, P. Haas, and T. G. Hill: Oxidation-Reduction Potential of Hermidin (Chromogen of Mercurialis perennis). C. Dorée and E. C. Barton-Wright: A Note on the Stone-Cells of the Pear. Margaret H. O'Dwyer: On the Nature of the Hemicelluloses. H. D. Carey: The Relation Between Hydrogen Sulphide, Hyposulphites, and Thiosulphates; by a New Method of Structural Formulæ. E. Ponder: The Shape of the Erythrocyte and its Respiratory Function.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, March 9th.—5 P.M., Prof. W. W. C. Topley: Experimental Epidemiology (last Milroy Lecture).

THURSDAY.—5 P.M., Dr. Bernard Hart: Development of Psychopathology, and its Place in Medicine (first Goulstonian Lecture).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

FRIDAY, March 12th.—5 P.M., Sir Arthur Keith: Demonstration on Parts concerned in the Secretion and Absorption of Cerebro-spinal Fluid.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

WEDNESDAY, March 10th.—Dr. Harrison: Blood Analysis and Discussion of Selected Laboratory Reports.

THURSDAY.—4 P.M., Mr. A. T. Pitts: Care of the Mouth.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole street, W.

MONDAY, March 8th, to SATURDAY, March 13th.—Fellowship of Medicine lecture, at the Medical Society, 11, Chandos-street, W. Thursday, at 5 P.M., Colonel F. E. Fremantle, M.P., on the Economics of Public Health. Free to all members of the medical profession. Special afternoon demonstration in Clinical Surgery on Thursday, at 5 P.M., at St. Mark's Hospital, by Mr. E. T. C. Milligan. —CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Post-graduate course in Gynæcology. Operations, lectures, and demonstrations daily.—ROYAL EYE HOSPITAL, St. George's Circus, Southwark, S.E. A series of demonstrations on the Diagnosis and Treatment of Diseases of the Eye. Monday to Friday, every afternoon at 3 P.M. Further information from the Secretary of the Fellowship of Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, March 8th.—10 A.M., Surgical Out-patients: Mr. W. E. Tanner. 10.30 A.M., Gynæcological Operations: Mr. A. E. Giles: Throat, Nose and Ear Operations: Mr. W. Ibbotson. 2 P.M., Medical, Surgical, and Gynæcological Clinics, Operations. 6.30 P.M., Venereal Department.

TUESDAY.—2 P.M., Medical, Surgical, Throat, Nose and Ear Clinics, Operations. 4.30 P.M., Mr. W. Ibbotson: Treatment of Chronic Rhinitis.

WEDNESDAY.—10.30 A.M., Surgical Operations: Mr. E. Gillespie. 2 P.M., Medical, Eye, and Skin Clinics, Operations. 5.30 P.M., Venereal Department.

THURSDAY.—10.30 A.M., Dental Out-patients: Mr. E. S. Pierrepont. 2 P.M., Medical, Surgical, and Throat, Nose and Ear Clinics, Operations. 5 P.M., Operations.

FRIDAY.—10.30 A.M., Eye Operations: Mr. N. Fleming, 2 P.M., Surgical, Medical, and Children Clinics, Operations. 3 P.M., Gynæcological Clinic. 6.30 P.M., Venereal Department.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: FEBRUARY-MARCH, 1936.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, March 8th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., The Neuro-Muscular System, III., The Voluntary Motor System: Dr. Kinnier Wilson.

TUESDAY, March 9th.—2 P.M., Out patient Clinic: Dr. Walshe. 3 30 P.M., Compression Paraplegia: Dr. Hinds Howell.

THURSDAY, March 11th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Epilepsy: Dr. Martin.

FRIDAY, March 12th.—2 P.M., Out patient Clinic: Dr. Adie. 3.30 P.M., The Neurono-fixative Poisons, Tetanus, Rabies, Diphtheria: Dr. Collier.

The fee for the Course, including Pathology lectures, is £5 5s. For those who hold Perpetual Tickets the fee is £3 3s.

Mr. Armour and Mr Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.

Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

J. G. GREENFIELD, Dean of Medical School.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, Leicester square, W.C.

TUESDAY, March 9th.—5 P.M., Dr. Wilfrid Fox: Nævi.

THURSDAY.—5 P.M., Dr. H. G. Adamson. Benign Growths of the Skin.

CENTRAL LONDON THROAT, NOSE AND EAR HOSPITAL, Grays' Inn road, W.C.

FRIDAY, March 12th —4 P.M., Dr. Andrew Wylie: Growths of the Larynx.

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

FRIDAY, March 12th.—3.30 P M. (at the Royal Infirmary), Mr. Finch. The "Chronic" Abdomen.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

TUESDAY, March 9th.—4.15 P.M., Dr. W. B. Anderton: Criminal Abortion.

FRIDAY.—4 15 P.M, Dr A. Ramsbottom: Demonstration of Medical Cases.

## Appointments.

GIBSON, JOHN M., M.D., D P.H. Belf., has been appointed Medical Officer of Health and School Medical Officer for the Borough of Hyde.

North Middlesex Hospital: BROWN, L G., M.D. Oxf., F.R.C.S. Eng, Oral Surgeon, DE CARY, F. P., L.R.C.P. Lond., M.R.C.S., FRANCIS, C. P., M B., B.S. Lond., Anæsthetists.

Certifying Surgeons under the Factory and Workshop Acts: THISTLETHWAITE, W., M B., Ch.B. Leeds (Sherburn); GLEN, C., M.B, Ch.B. Glasg (Cumbernauld, Dumbarton).

## Vacancies.

*For further information refer to the advertisement columns.*

*Birmingham, Queen's Hospital.*—H.P., H S.'s, Cas. H.S, and Res. Anæsthetists. Each £70. Also Pathologist. £100.

*Bolingbroke Hospital, Wandsworth Common, S.W.*—Res. M.O. £200.

*Bradford, Grassington Sanatorium.*—Med. Supt. £100.

*Brighton, New Sussex Hospital, Windlesham road.*—H.S. At rate of £50.

*Capetown City.*—Asst. M.O. £800.

*Cardiff City Mental Hospital, Whitchurch, near Cardiff.*—Res. Clin. Asst. for six months. 50 guineas.

*Cardiganshire County Council, Aberystwyth.*—M.O.H. £800.

*Carlisle, Cumberland Infirmary.*—Jun. H.S. At rate of £135.

*Central London Ophthalmic Hospital, Judd-street, W.C.*—Asst. S.

*Charing Cross Hospital.*—Surg. Reg., Med. Reg. Each £150. Also Obstet. Reg.

*Chester Royal Infirmary.*—Asst. H.S. £125.

*Croydon Mental Hospital, Upper Warlingham, Surrey.*—Asst. M.O. £350.

*Dreadnought Hospital, Greenwich, S.E.*—H.S. and H.P. Each at rate of £110.

*Folkestone, Royal Victoria Hospital.*—Res. M.O. At rate of £150.

*Freemasons Hospital and Nursing Home, 237, Fulham-road, Chelsea, S.W.*—Res. M.O. At rate of £250.

*Hampstead Borough.*—Four Consulting Obstetricians.

*Hospital for Epilepsy and Paralysis, Maida Vale, W.*—Hon. S. to Ear, Nose, and Throat Dept.

*Hospital for Women, Soho-square, W.*—Res. M.O. At rate of £100.

*Hull City and County of Kingston-upon-Hull Maternity and Child Welfare Dept.*—Asst. M.O. £600.

*Hull Royal Infirmary.*—Asst. H.S. £150.

*Hull, Victoria Hospital for Sick Children, Park-street.*—Res. H.P. £80.

*Lancashire County Mental Hospital, Rainhill.*—Fifth and Sixth Asst. M.O.'s. £350.

*Liverpool Eye and Ear Infirmary, Myrtle-street.*—Hon. Asst. S.

*Liverpool Port Sanitary Authority.*—Asst. Port M.O. £700.

*London Hospital, E.*—Gynæcological Reg. £400. Also Cardiographic Dept., Paterson Research Scholar. £400.

*London Lock Hospital, 283, Harrow-road, W.*—Second H.S. £150.

*Manchester, St. Mary's Hospitals.*—Three H.S.'s. Each at rate of £50.

*Middlesex Hospital, W.*—Reg. to Ear, Nose, and Throat Dept. £300.

*National Hospital for the Paralysed and Epileptic, Queen-square, W.C.*—Med. Reg. £200. Also Orthopædic S.

*Newcastle-upon-Tyne, Hospital for Sick Children.*—Sen. and Jun. Res. M.O.'s. At rate of £120 and £100 respectively.

*Northampton General Hospital.*—Hon. Asst. S.

*Northumberland County Council, Wooley Sanatorium, near Hexham.*—Asst. Med. Supt., &c. £600.

*Plymouth, Homœopathic and General Hospital.*—H.S. £150.

*Queen's Hospital for Children, Hackney-road, Bethnal Green, E.*—Res. M.O. £200. H.P. At rate of £100.

*Royal Free Hospital and Lond. Sch. of Medicine for Women, Gray's Inn-road, W.C.*—Sen. Asst. Path. Full time. £600.

*Royal Northern Hospital, Holloway, N.*—H.S. and Obstet. H.S. Each at rate of £70. M.O. to Out-patients. At rate of £125.

*St. Bartholomew's Hospital.*—Chief Assts. in Ophth. Depts.

*St. John's Hospital, Lewisham, S.E.*—Res. H S. At rate of £100.

*St. Luke's Hospital, Cale-street, Chelsea, S.W.*—First Asst. M.O. £120.

*St. Mary's Hospital, Institute of Pathology and Research.*—Research Studentship. At rate of £200.

*St. Paul's Hospital for Skin and Genito-Urinary Diseases, Endell-street, Holborn, W.C.*—H.S. £200.

*Salisbury General Infirmary.*—H.S. £150.

*Stockton-on-Tees, Stockton and Thornaby Hospital.*—Sen. H.S. £250.

*Sunderland Royal Infirmary.*—H.S. £140.

*Tottenham Maternity and Child Welfare Committee.*—Asst. M.O. at the Ante- and Post-natal Clinics.

*Wallsall General Hospital.*—Sen. H.S. and Jun. H.S. At rate of £175 and £125 respectively.

*Weir Hospital, Grove-road, Balham, S.W.*—Jun. Res. M.O. £100.

*West London Hospital, Hammersmith, W.*—H.P. and two H.S.'s. Each at rate of £100.

*Windsor, King Edward VII. Hospital*—Hon. Asst. S.

*York County Hospital.*—H.P. £150.

The Chief Inspector of Factories, Home Office, London, S.W., announces vacancies for Certifying Factory Surgeons at Fordingbridge (Hants), Conway (Carnarvon), and at Bradford, South (Yorks, W. Riding).

## Births, Marriages, and Deaths.

### BIRTHS.

CHURCHER.—On Feb. 24th, the wife of D. G. Churcher, F.R.C.S., Tarporley, Cheshire, of a son.

### MARRIAGES.

BURKE—BLACKWOOD.—At St. Cuthbert's Parish Church, Edinburgh, on Feb. 18th, by the Rev. J. Donald Beattie, B.A., Myles Edmund Towers Burke, L.R.C.P. & S. Edin., and L.R.F.P. & S. Glasgow, Finchley, London, to Margaret M'Arthur Blackwood, Logan Cottage, Dunbar.

KNAGGS—SMITH.—At St. George's Church, Bickley, by the Rev. Canon Baggallay, Robert Lawford Knaggs M.C.Cantab. F.R.C S., to Adrienne Ernestine Blanche (née Blouet-Dargonne), widow of Morton William Smith, Recorder of Rochester.

### DEATHS.

TRESIDDER.—On Feb. 23rd, at Askern, Edward Stanley Tresidder, M.R.C.S. Eng., L.R.C.P. Lond., in his 67th year.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## THE DIARY OF A PARAPLEGIC PATIENT

BY E. GOWLLAND, D.S.O., M.B. LOND.,
LIEUT.-COLONEL, T.D., COMMANDANT, STAR AND GARTER HOME FOR DISABLED SAILORS AND SOLDIERS, RICHMOND, SURREY

THIS is an attempt to give some idea of the normal daily routine of many of the patients in the Star and Garter Home for Disabled Sailors and Soldiers, suffering from the effects of wounds and injuries of spine and resulting paraplegia, which will indicate the meticulous care which is essential in order to avoid deformities and the occurrence of bedsores with subsequent infection of bladder, kidneys, &c., and will emphasise the necessity for constant attendance by skilled nurses and orderlies in this class of work.

The routine starts at 5.30 A.M., when a cup of tea is brought to the patient by a night orderly. At 6 A.M. he is either washed or a bowl of water is brought to him. This process being finished he turns to his morning paper, which he peruses until 8 A.M., when breakfast is served, tea or coffee being placed on a locker within easy reach. Breakfast finished, the day's treatment commences. Where the paralysis is complete in the lower half of the body an enema is administered two or three times a week, as these men are incontinent, and it is only by frequently clearing the lower bowel that they are enabled to get up and pursue any avocation without danger to themselves and considerable unpleasantness. The enema has not the same effect as on an ordinary individual. The bowel empties itself very gradually and necessitates constant attention, the draw sheet having to be frequently changed to avoid soaking in fæcal matter, which might precipitate the much-dreaded danger of bedsores or trophic ulcers. It must be realised that after removal of the bed pan there usually occurs a prolonged "leaking." After this process, which takes from one to one and a half hours, the bladder is washed out, and should the patient have a suprapubic opening, the suprapubic tube is changed, and a fresh sterilised tube is inserted and strapped to the abdominal wall. This takes about 20 minutes. Then, two or three times a week he is bathed (unless he is a suprapubic case). This means that the patient has to be lifted from his bed to his ward chair and wheeled by an orderly to the bathroom, where pyjamas or night clothes are removed from him, and he is lifted into the bath and washed by an orderly. He must then be lifted from the bath, usually by two orderlies, and placed in a blanket which has been spread over his ward chair. He is thoroughly dried, quickly wheeled back, and lifted into his bed, his pyjamas then being replaced. On the days when he is not bathed he may be given a radiant heat bath, diathermy, or such other treatment as may be ordered for the relief of painful spasm of legs, &c. On his return to bed the nursing sister arrives with a dressing trolley. His back is thoroughly rubbed with methylated spirit, any trophic ulcers are cleaned and dressed, careful attention being given to all bony prominences at the lower part of the back and hips, which are then padded with Gamgee tissue, this being secured by a many-tailed bandage. Attention is then given to the knees, heels and ankles, which are rubbed (using firm, circular movements) with methylated spirit. The heels are protected from pressure on the bed by placing a small cushion under the Achilles tendons. The feet are propped up by a firm bolster, and small cushions are placed under the knee-joints to prevent hyperextension. The toes and knees are protected from the weight of bedclothes by the constant use of a cradle. When this process is finished he is ready for his massage, and it is found that 20 to 30 minutes massage of legs, back, and abdomen, together with passive movements, is essential for the well being of these cases.

The patient now rests until about 11.30, when an orderly proceeds to dress him on his bed; his rubber urinal is fixed, and he is again lifted into his ward chair. This process takes some 20 minutes. The method of adjusting a paraplegic into a ward chair is not so simple as it may sound—air cushions and other cushions have to be carefully arranged to suit individual requirements, the patient's legs have to be carefully placed on the foot board, and in many cases strapped down, as so many of these men suffer from severe spasmodic contractions. Our paraplegic now proceeds to a lift, which takes him down to the dining hall, where specially designed furniture enables him to sit comfortably up to the table. After dinner many of the men who are interested in handicrafts go to the various workshops—engineering, carpentry, spinning, leather work, basket work, boot repairing, photography—for all of which occupations facilities are provided in this home. Three of our men also edit and run a quarterly magazine for the home. Others go to the common room, where they, perhaps, play cards or other games, or to the billiards room, where they play from their chairs, and many of these men play quite a good game, frequently making breaks of 20 and over. It is extremely difficult to play from one of these wheeled chairs, even for a man who is normally a good player.

It will thus be seen that their life is comparatively strenuous, considering that most of them are completely paralysed "below the belt." They have tea about 3.30, after which, on two or three days a week there is some afternoon entertainment either in the common room or cinema hall. Supper at 7 P.M., after which a large number go back to their beds, again being lifted from chair to bed and undressed by an orderly. Subsequently, toilet of the back is again carried out by a nursing sister. Medicines, such as aperients, are given at about 9 P.M., when lights are lowered and the night sister and orderly take over the patient. His rubber day urinal is changed for the "swan neck" bottle urinal, and after perhaps listening for an hour to a wireless concert he goes to sleep. The nights, however, are by no means undisturbed. About 1 A.M. the urine bottle is emptied, cleansed and replaced, and it not infrequently happens that he wakes to find that his bowels have acted and he is lying in excrement, in which case an orderly is summoned, who washes and cleanses the patient and changes his draw-sheet. The urine bottle must always be carefully watched by orderlies; any overflow means the soaking of the patient and again cleansing and changing of draw sheet.

It must be realised that most of these patients have lost both sensation and power of movement, so that it is essential that nursing sisters and orderlies shall be ever on the alert to prevent excretory mishaps, not that these mean immediate discomfort to the patient (it would be better if they did!) but because of the danger: (1) of the occurrence of bedsores, and (2) of the infection of existing trophic ulcers, which dangers must always be borne in mind by those legislating for the adequate treatment of the paraplegic.

It must be remembered that in these cases: (1) the circulation in the skin is deficient; (2) the skin is very apt to break down under quite minor irritations; (3) the infection of an existing trophic ulcer, or the occurrence of a new bedsore is fraught with danger to the patient, by reason of the fact that any septic infection in such cases is very liable to be followed by a general infection, cystitis, or pyelitis—and pyelitis is almost always the "end condition" in the paraplegic.

These patients nearly always spend one or two days per week entirely in bed—usually their "enema days." Most of them go out in hand propelled tricycles, with or without a motor attachment; they must be lifted into these vehicles from their ward chairs and carefully arranged therein, with air cushions, pillows, &c., and, of course, lifted back on their return. The terms "trophic ulcer" and "bedsore" have been used—these terms may appear synonymous. In this paper, however, the differentiation is meant to indicate that a trophic ulcer is an inevitable occurrence and cannot be healed (but it can be kept surgically clean); whereas a bedsore is an accident and can normally be healed. In this sense a "bedsore" is usually an indication that details of nursing technique have not been thoroughly carried out, and it is interesting to note that many patients, on return from leave, exhibit bedsores.

It will be gathered that the working day of the paraplegic patient and of those who are privileged to look after him is indeed a strenuous one, and it is only by cheerful coöperation on the part of the one, together with assiduous attention to the rules of surgical cleanliness and good nursing on the part of the others, that these cases can be maintained in such a state of health that they are able to participate in, and enjoy, some of the pleasures and entertainments of those who are not so grievously afflicted.

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## THE FOOD OF THE COUNTRY.

*To the Editor of* THE LANCET

SIR,—In reference to your note in *THE LANCET* of Feb. 20th with this title the sad truth seems to be that the French partly, and we ourselves in a greater degree, have lost the hearty intelligent zest of our forefathers; we have become less critical; we take less trouble with our meals, think about them less, talk about them less, read about them less. In what kitchen now is the carp, "that is so curious to be caught," turned, as Izaak Walton directs, into "so curious a dish, as shall make him worth all your labour and patience"? Sad lines for the English gourmand are those that follow. Where now is the popular writer who rhapsodises over meals like a Dickens or a Disraeli, revels in them hugely like a Sala, philosophises over them like a Peacock? Alas, the pleasures of the table have ceased to provide good "copy"; instead, and it is as if we were a nation of invalids, we have columns in the newspapers devoted to vitamins and peptones and such dark matters, which may intrigue the public, but bore woefully those who know something of the subject. For many things are as essential to a meal as vitamins, or, which is the same thing, wholesome food. Obviously, the better the food, the better for those that eat it; but that is only the alphabet of the language of real dietitians, and any grown man, not mentally deficient, knows well enough what food or substance will "agree" or "disagree" with his internal mechanism. "Victims of indigestion," Brillat-Savarin roundly declares, "are those who know not how to eat." The gourmand knows more than simply how to eat. As we eat to live, so to live well we must eat well; if we would enjoy life we must enjoy our eating; and this is a higher ideal than a mere combination of nourishment and good digestion. Breakfast, on working days, may pass if it attains those salutary ends; the mid-day meal, if money-getting is the order of the afternoon, may also be severely practical; but dinner at the day's end should provide an intellectual no less than a physical recreation, and a man should rise from it refreshed alike in body and soul.

The strictly necessary foundations of such a meal, besides good food, are good cooking and prompt service; good wine, if the occasion warrants it; congenial company; and cheerful surroundings. I am perfectly aware that much of this is unattainable to-day, for nearly all of us as a *routine* —I set it out as an *ideal.* Many a dinner is eaten as a ceremony lacking one or more of these essentials; and if it is difficult to decide whether one is more important than another, this much is certain, that for each that is lacking the cost is a proportionate loss of recreation. Luxury, says Savarin, is by no means necessary (though he is far from decrying it in general); it costs little more to eat good food than to eat bad; the company and surroundings are within the reach of most men; in the matter of wines, Prof. Saintsbury's "Notes for a Cellar Book" are an unfailing guide. Cookery, whether regarded as an art, a science, or a hobby, is something that may be learnt, or at the least something that any man may learn to appreciate; but if he learns to cook ever so modestly, it is to his advantage; to have fried an egg as well as it can be fried is a step towards detecting the peculiar excellence of the wing on which a partridge rests its weight during its hours of sleep.

But with all this, the essence of good eating has yet to be named. It is best conveyed, perhaps, in the word "gusto." What matters above all is the spirit in which a man approaches his meals. They should be approached, at least once in the day, not as an inevitably recurring feature of the business of living, but as a joyous rite, a ceremony of thanksgiving. For good things, said the sage, were created for good folk; else we should be forced to conclude, profanely, that God created them for sinners.

We are a nation of individualists, and there are gourmands still in our midst; and it is, or should be, well known that they are among the happiest and most contented of mortals. But in a thousand restaurants, so-called, and in a million homes, the word of St. Savarin is daily ignored; and there should be a national recognition of the truth, that *gourmandism is not gluttony; when a national habit of* deliberately enjoying "good cheer" (to use a fine phrase that is in danger of dropping out of the language) would follow. I am, Sir, yours faithfully,

Feb. 25th, 1926. BON-VIVANT.

## ADRENALIN FOR PARAPHIMOSIS.

*To the Editor of* THE LANCET.

SIR,—Some little time ago I had occasion to write to the makers of "Adrenalin," and mentioned that I had found their preparation useful in cases of paraphimosis, and they informed me that it was, to them, a new use of the substance. I therefore venture to suggest its use in such cases; the swollen and congested mucous membrane and glans become much smaller under gentle pressure after being well moistened with the "Adrenalin," and reduction is then accomplished.

I am, Sir, yours faithfully,

Feb. 25th, 1926. M.B.

## THE STUDY OF HYGIENE.

THE reception held on Feb. 25th at the Institute of Hygiene was a useful reminder of the patient work that is always being done, largely behind the scenes, to improve living conditions in this country. The Institute was founded in 1903, and its work has been steadily growing ever since. The public owes it much for its promotion of the study and practice of everything that makes for healthy, clean, and efficient living. Its membership includes a great many foreign authorities on public health. It convenes conferences on important questions of communal hygiene, organises lectures by medical and scientific men, and founds scholarships. Some of its most important work is directed against adulteration and false description, and it examines proprietary foodstuffs in its laboratories and issues a diploma to manufacturers whose products *conform to its standards; this* guarantee expires at the end of every year. The Institute maintains a large museum (with a permanent staff of demonstrators), at its headquarters at 28, Portland-place, where anyone interested may inspect samples both of healthy and injurious articles of food, drink, and clothing. The hall-mark of the Institute is now becoming familiar to the general public, and makers regard it as a valuable possession.

The guests whom Sir Thomas Oliver received on Feb. 25th saw, besides the permanent exhibits, a large number of interesting additions. The infant section, conducted by the Central Council for Infant and Child Welfare, showed photographs of the work done at centres and hospitals, with educational appliances and propaganda pictures, and the demonstrations of cooking in the domestic section were popular. Microscopes with slides of food adulterants and parasites were shown, and a demonstrator from a firm manufacturing chemical apparatus gave a display of practical glass-blowing. Amongst the visitors was a group of foreign public health officers who are studying conditions and methods in this country under the auspices of the health department of the League of Nations.

## ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON.

"OUR main building is 100 years old, and the site does not easily lend itself to expansion. Our accommodation is taxed to breaking point and a vast amount of work will have to be done if the hospital is to be made worthy of the county." So runs the annual report presented to the governors of the Royal Sussex County Hospital on Feb. 18th. Brigadier-General d'A. C. Brownlow, the chairman, said that the governors had engaged the services of Colonel D. J. Mackintosh to advise them on future extension. His scheme was divided into three parts, the first of which had been approved. This was the enlargement of the nurses' home and the building of an annexe for domestic servants. The second part was the construction of more wards, or, alternatively, of a recovery home, whilst the third was a plan for general improvement and expansion of the existing departments. General Brownlow said that on the day before that meeting there had been 222 cases in hospital, which had left only three beds for emergencies and casualties. There was a waiting list of 117. Thanks to rigid economy and a very close supervision of all expenditure, the total income had exceeded expenditure by £1,153, but the annual subscriptions, despite many urgent appeals, showed an increase of only £56. "We are up against a mountain of apathy," General Brownlow declared. At certain times there was a good deal of enthusiasm, but it was usually confined to a very small section. The governors placed on record the loss the hospital had sustained by the death of Dr. J. F. Gordon Dill, honorary consulting physician. "Dr. Dill's services to the hospital extended over a period of 36 years. He will always be remembered as the founder of the Sussex Provident Scheme. His shrewd and ready advice is much missed in our counsels." Lord Leconfield, lord-lieutenant of the county of Sussex, was elected President for the year.

## INFANT WELFARE IN THE FEDERATED MALAY STATES.

IN the annual report of the infant welfare centre at Kuala Lumpur, Dr. Josephine Were, the medical officer to the centre, is able to point to satisfactory progress in many directions during the year 1921. The centre is primarily an educational institution, providing advice and teaching for young mothers of many nationalities in the care and management of their infants. The teaching is largely individual, since the mothers, especially the Chinese and Malays, are both ignorant and superstitious. The prejudice against allowing the babies to be weighed is gradually being overcome, but there is still a good deal of difficulty in getting the mothers to believe in the necessity of a daily bath for their infants, and an even stronger objection on their part to removing a charm. One such charm consisted of a dog licence bearing the inscription "1915. Selangor, one dog. 1609."

Antenatal work is steadily going forward, the number of expectant mothers attending the antenatal clinic having been nearly trebled during 1921. Another very satisfactory advance is the almost entire disappearance of the prejudice against the visits paid to the homes by the health visitors. This health visiting is particularly valuable in bringing mothers and babies in remote districts into contact with the centre.

Apart from the work of the infant welfare centre itself, the most valuable propaganda work undertaken during the year was the infant welfare exhibition and the baby competition at the Malayan Agri-Horticultural Exhibition, held at Kuala Lumpur. Large numbers of Asiatics of all classes visited the exhibition and displayed the keenest interest in it. The baby competition, which was the first of its kind in the Federated Malay States, was also a marked success, and proved to be the most useful propaganda work so far undertaken.

THE SECOND[*] (1926)

# Milroy Lecture

ON

# EXPERIMENTAL EPIDEMIOLOGY.

*Delivered before the Royal College of Physicians of London on March 4th*

BY W. W. C. TOPLEY, M.D. CAMB.,
F.R.C.P. LOND.,
PROFESSOR OF BACTERIOLOGY, UNIVERSITY OF MANCHESTER.

IN the preceding lecture a brief description was given of the general character of experimental epidemics among mice, and of the effect of adding susceptible to infected animals in various ways and at different rates. In the present lecture I propose to discuss such data as are available with regard to the factors concerned in bringing about the phenomena observed.

There are two principal participants in the struggle which underlies any epidemic of infective disease, the specific parasite and the animal host. It is convenient, for the purposes of discussion, to consider separately the factors which may vary in connexion with each of these, though this separation is extremely difficult to make in practice, and this difficulty forms one of the chief obstacles to a better understanding of the actual course of events.

The important variables in the case of the parasite may be supposed to be concerned with dosage and with pathogenic power; but it is far from easy to define either of these factors as they are concerned in the natural spread of disease from host to host, and still less easy to give them quantitative expression. It is my personal belief that the facile, but uncritical, use of such terms as dosage and virulence has done much to confuse the issues.

### *DOSAGE.*

It is usual to apply the term "dose" to the number of viable bacteria received by an animal host during an interval of time so short that the reception may be regarded as a single event; but very little consideration will show that such a definition cannot be employed in describing the course of events during the natural spread of disease among an infected herd. Dosage, in this sense, cannot be expressed as a quantity of bacteria, for we are not concerned with an isolated event, the reception of so many bacteria by a particular mouse. It can only be expressed as a probability, the chance that any one individual among the population at risk will, within a given time, receive a given number of bacteria.

Since we are concerned not with a single event occurring in a small interval of time, but with a possible succession of events covering weeks, months, or years, we must consider the possible effects of the order of doses, as well as the total dosage received in any period of time; and there is every reason to believe that a small dose of the specific bacterium, followed after an appreciable interval by a large dose, may have a very different result from that produced by an initial large dose, whether followed or not by subsequent smaller doses. In this connexion we must also take into account the rate at which a series of doses are received, a question which has been discussed by Dudley,[33] in connexion with naturally occurring outbreaks of diphtheria. His views as to the part played by the velocity of infection raise issues of the greatest interest and importance.

We must also realise that the functional significance of dosage may differ widely when we are considering, on the one hand, the natural intake of bacteria as by ingestion or inhalation, and, on the other, the introduction of bacteria directly into the tissues by inoculation. Defence mechanisms come into play in the former case, which are circumvented in the latter. It is probable that, in naturally occurring infection, many interrelated factors are concerned, and that these may vary independently, so that the actual event, in any particular case, *will be largely a matter* of chance, unless the dose received be so large as to overwhelm all possible resistance, or so small as to be inoperative under any circumstances. It may be that repeated small doses, within certain limits, will be more effective than a single larger dose, since there will be a succession of trials, each of which may succeed or fail. If, however, these trials are not independent, but the chance of success or failure of any one of them is determined to some extent by the results of previous trials (and this is almost certainly the case), then the problem becomes exceedingly complex, and the definition or measurement of effective dosage can hardly be achieved.

In the present state of our knowledge we can only speak of dosage, as it affects the events within an infected herd, in the most general way, remembering that it must in any case imply a chance of something happening, and not the quantitative expression of an actual isolated event.

### VIRULENCE.

Another variable in relation to the parasite is its power of establishing itself in the body of an animal host, and of producing disease and death when so established. This power is often referred to as virulence, but, as I have emphasised elsewhere,[*] this term as at present used is inadequate and misleading. There are at least two factors involved: the ability to proliferate at the point of entry, for instance, in the naso-pharynx or in the intestinal tract of the host, and the ability either to produce *some toxin at the site of local proliferation or to* invade the tissues and produce sickness or death by a generalised infection. We have no right to assume, a priori, that these biological properties are always highly correlated, that an organism which is capable, once it has gained access to the tissues, of causing a rapidly fatal septicæmia or toxæmia is also endowed with those properties which will enable it to spread readily from host to host among an infected herd. It is important, therefore, when we attempt to measure any biological character of the parasite with the object of defining the rôle of this factor in the epidemic spread of infection, that we should first determine *as precisely as possible what it is that we are measuring*. The term "virulence" is so firmly established in the medical vocabulary that it seems hopeless to replace it; moreover, if used in its literal sense of poisonousness, without any implication as to the particular lethal mechanism involved, it serves a useful purpose. It will be used here in this general sense, implying simply the power to produce death of a particular species of animal within a specified time-limit.

### HERD-RESISTANCE.

When we turn to the variable factors in connexion with the host, it is usual and convenient to group *together all those characters* which play a part in determining the occurrence, course, and outcome of a microbial infection, once the parasite has gained access to the body, under the general terms "resistance" or "immunity." At the moment we must be content with some such vague description of the sum total of the host's defensive powers, but there is one point which needs immediate emphasis.

Most of us who have been concerned at all with the problem of immunity have been accustomed to take the individual as our unit. When we take as our unit not the individual but the herd, entirely new factors are introduced. Herd resistance must be studied as a problem *sui generis*. One factor peculiar to the development of communal as opposed to individual immunity may be referred to here. A herd may clearly increase its average resistance by a process of simple selection, by the elimination through death of its more susceptible members. The initial distribution of resistance among the population at risk will almost certainly be uneven, and it will probably vary with time, since there is no reason to suppose that the resistance of any individual host will remain constant throughout the course of an epidemic. That some process of active immunisation will be associated with the occurrence of non-fatal infection may safely be assumed, though its degree and importance may be very difficult to assess, so that we must allow for the possibility that the spread of infection which is killing some of our hosts is immunising others. Here, again, just as the factor of dosage, as it intervenes in the phenomenon of herd infection, can only be expressed in terms of probability, depending upon the distribution of the parasite, so the resistance of the herd at any given moment will be determined by the frequency distribution within it of individuals of varying orders of susceptibility.

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[*] The first lecture appeared in THE LANCET last week.

A very imperfect analogy may help to depict the position. Suppose we take a number of stakes of different thickness, plant them in the ground and expose them to bombardment with stones of varying size flung from catapults of varying strengths. After a certain time we shall find that a number of the stakes have been broken. This will not have happened to many of the thicker stakes, but other survivors will consist of thinner stakes, around which ineffective missiles have formed a protective armour. Survivors of the latter class are in a precarious state; subsequent bombardment may displace the protective heap, and perhaps add its impetus to that of the new missile. Survivors of the former class may eventually be destroyed by missiles of sufficient momentum. At any given moment many of the stakes still standing will owe their survival to chance escape from fatal impacts. On the whole the fact that, in our experimental work, we have nearly always found that the oldest survivors of series of epidemics ultimately died of the specific infection is in favour of the view that the way the shots fall, rather than the thickness of the stake, is the important factor; but since our only criterion of relative thickness is, in practice, whether the stake falls or not, judgment remains difficult.

### OTHER FACTORS.

It should be emphasised here that there is no justification for assuming that the quantitative and qualitative relations between the parasites and hosts are the sole determinants of the epidemic spread of infection. There are excellent reasons for believing that other factors may play a decisive rôle. It is, of course, the main object of such experiments as those we have carried out to reduce the number of such extraneous factors to a minimum; but there is a limit beyond which conditions cannot be simplified, and it may well be that some of the extraneous factors which have not been eliminated may play an essential part in the phenomena observed. It is, for instance, very possible that other micro-organisms, in addition to the specific parasite of the disease under investigation, may exert an important influence on the course of events. It is certain that innumerable bacteria and other organisms must pass to and fro from host to host under the conditions existing in these experiments, and we know of many examples in human and animal diseases in which double infections appear to play a decisive rôle. Other factors, such as variations in diet when these occur, or the ingestion or inhalation of particular toxic substances, may clearly be involved, and the possible part played by insect vectors of infection may have to be taken into account in particular instances.

In the light of these general considerations, we may briefly consider the data which have been yielded by experiment.

### EXPERIMENTS ON DOSAGE.

As a preliminary to studying the influence of dosage in the natural spread of bacterial infection, it is necessary to obtain some idea as to the effect of variations in the number of bacteria received by the host in the experimental infection of individual mice. It is frequently assumed that the relation between dosage and death in such experimental infections is a very simple and direct one, so that it is an easy matter to determine the minimal lethal dose of any pathogenic organism and to compare the virulence of two cultures of a given organism by determining the minimal lethal dose of each of them. It may, however, be noted that such measurements have generally been made on organisms which produce a distinctive toxin or bring about a lethal result by causing a rapidly fatal septicæmia, and which in either case are not natural pathogens of the experimental animal employed.

It is rash to assume that the same relations will hold true in the case of bacteria which naturally attack the host species chosen for experiment, and are known to give rise to acute or chronic disease or to a condition of latent infection. Lockhart, working in my laboratory, has recently made a careful study of the effect of variation in dosage on *B. aertrycke* infection in mice. His complete report is about to be published elsewhere,† but I am permitted to refer to some of his results.

His own experiments were in all cases concerned with the results of intraperitoneal inoculation, but he collected from the literature a large number of experiments in which this organism had been administered either intraperitoneally or per os, including a very large number recorded by Webster, a smaller number by myself and my colleagues, and a few reported by Neufeld, Lange, and others. To these were added the results recorded in many unpublished experiments carried out in my own laboratory. The relevant figures are recorded in Table III. It is obvious that large fluctuations in dosage, over a wide range, may make relatively little difference in the resulting percentage mortality. If we consider dosage in the wider sense, which has been outlined above, it is far more difficult to obtain any reliable data. Amoss,[21] in the communication to which we have already referred, lays considerable stress on the influence of dosage in the epidemic spread of mouse-typhoid, and regards variations in this factor, together with variations in the biological properties of the parasites, as probably determining the course of events. An increase in dosage is assumed to be an inevitable result of the contraction of the specific disease by the more susceptible mice, and this assumption is a very natural one, if we use the term "increase in dose" to mean an increased chance of any mouse at risk ingesting the specific bacterium. No attempt, however, is made to measure this increase in the concentration of *B. aertrycke* in the cage.

TABLE III.

| Dose. | Per os (collected). |  | Intraperitoneal (collected). |  | Lockhart. |  |
|---|---|---|---|---|---|---|
|  | No. of mice. | % mortality. | No. of mice. | % mortality. | No. of mice. | % mortality. |
| $10^8$ | 108 | 41 4 | — | — | — | — |
| $10^7$ | 111 | 63·0 | 154 | 100 | 400 | 90·75 |
| $10^6$ | 111 | 42 0 | 149 | 98 | — | — |
| $10^5$ | 36 | 22·2 | 211 | 95·7 | 400 | 70·0 |
| $10^4$ | 43 | 23·5 | 125 | 76 5 | — | — |
| $10^3$ | — | — | 59 | 86 6 | 400 | 59·75 |
| $10^2$ | — | — | 43 | 46·4 | — | — |
| 10 | — | — | — | — | 400 | 30·75 |

In one of our own experiments[13] we have carefully followed the daily excretion of *B. aertrycke* by each mouse in a herd among which mouse-typhoid was spreading, and to which one normal mouse was added daily. The technique employed gave roughly quantitative results, so that we were able to estimate the copiousness of the excretion in each case as well as its actual occurrence. Chart 9 records the more important data obtained. On the upper base line are recorded the daily deaths in the same manner as in the earlier charts. Below is recorded, for six days out of every seven, the percentage of the mice at risk which were excreting *B. aertrycke* in their fæces. It will be seen that the main wave of mortality is preceded, at a considerable interval, by a marked rise in the excretion-rate, and that this excretion-rate falls while the epidemic is gaining force. It is clear from this experiment that, so far as mouse-typhoid is concerned, there is, during the pre-epidemic phase, an increasing probability that any given mouse will, within any assigned interval of time, ingest a certain number of *B. aertrycke*.

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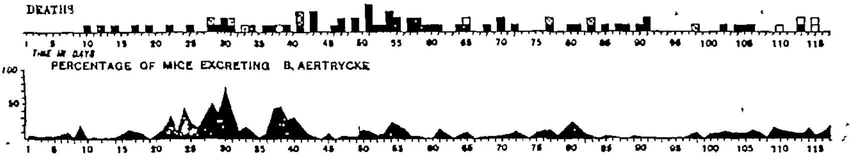
† Jour. of Hygiene, xxv., 50.

With regard to pasteurellosis, we have at present far less information as to the relation between dosage and death in the individual mouse, and none at all as to the carrier-rate in an infected herd. Such data as we do possess on the former point suggest that, here again, variation over a wide range in the number of bacteria received by an individual host as a single dose has relatively little effect in determining the outcome of the resulting infection.

CHART 9.



### EXPERIMENTAL STUDY OF VIRULENCE.

In an extensive series of experiments, in which mice were infected with *B. aertrycke* either by intraperitoneal inoculation or by injection into the stomach through a metal catheter, Webster[34-36] obtained results which led him to the view that variations in the virulence of the bacterial parasite played little, if any, part in the epidemic spread of mouse-typhoid. He concluded from his results that any one strain of *B. aertrycke* retains its virulence at a constant level over long periods of time, when subcultured on the ordinary laboratory media, and that no evidence could be obtained of any significant increase in virulence when a given strain was passed from mouse to mouse.

The investigation carried out by Lockhart, to which I have already referred, has indicated very clearly the difficulties to be faced in comparing the virulence for mice of two or more strains of *B. aertrycke*. Paying due attention to the probable errors of sampling, Lockhart found that strains of *B. aertrycke* might show a marked decrease in virulence, as judged by intraperitoneal inoculation, after repeated subculture in broth; that different strains, with a common derivation within a period of a few years, but isolated from different mice and under different circumstances, might show significant differences in virulence; and that mouse-to-mouse passage might produce a significant increase in the virulence of a given strain, although such an increase could not be produced with any constancy. For the details of Lockhart's experiments reference must be made to his report, now in course of publication.

TABLE IV.

| Strain of *B. aertrycke* | No. of mice fed. | Total deaths. | Specific deaths. | Total No. infected.* | Strain of *B. aertrycke*. | No. of mice fed. | Total deaths. | Specific deaths. | Total No. infected.* |
|---|---|---|---|---|---|---|---|---|---|
| Pl.19.v | 20 | 11 | 11 | 13 | A 52 | 20 | 1 | 1 | 6 |
| | 20 | 15 | 11 | 15 | | 20 | 1 | 0 | 7 |
| | 20 | 13 | 13 | 13 | | 20 | 2 | 0 | 5 |

* This includes surviving mice from whose spleens *B. aertrycke* was isolated post mortem.

In Table IV. are set out the results of testing two of our own strains of *B. aertrycke* by administration to mice per os. Suspensions of growths on agar were made in Ringer's solution and administered by allowing a few drops of a suitable dilution to fall into the open mouth of each mouse from a calibrated dropping pipette. Each strain was tested on three separate batches of mice, each batch consisting of 20 animals, in order to determine the deviation in the percentage mortality due to chance variation. The mice were observed over a period of 28 days, and the survivors were then killed and cultures made from their spleens.

It is obvious from the table that strain Pl.19.v. is more virulent than strain A 52, since the difference in the mean percentage mortality in the two groups is well beyond the probable error of sampling indicated by the deviation within each group. It is obvious also that the strain which is more virulent produces a higher percentage of total infections, lethal and non-lethal combined, but that this difference is not so great as the difference in percentage mortality. The fact that strains, which are relatively avirulent, may still produce a high proportion of non-lethal infections, has been clearly indicated in Lockhart's experiments.

It should perhaps be emphasised that the variations in the power of producing death, to which we are now referring, have not been related to any observable variations in colony formation, or in the mode of growth in liquid media. That rough variants of *B. aertrycke* occur has been demonstrated in the course of earlier experiments. The strains examined by Lockhart and by ourselves in the present series were all of the smooth variety.

Our results have therefore led us to a conclusion different from that reached by Webster. They indicate that significant variations in the virulence of *B. aertrycke* for mice may occur under various conditions. Whether or not such variations play any rôle in the epidemic spread of mouse-typhoid is a question which still awaits an answer.

With regard to variations in the virulence of *Pasteurella muris*, far less evidence is available than in the case of *B. aertrycke*; but the few experiments which we have performed leave little doubt that such variations occur. There is here no conflict of evidence between the results which we have obtained in mice and those which Webster[40-44] has obtained with pasteurellar infection in the rabbit. Here, again, the significance of such variation in the epidemic spread of the infection remains undetermined.

It has been emphasised above that biological characters of the parasite, other than virulence as here defined, may play an important part in the epidemic spread of infection. We have as yet no means of measuring such characters, so that we cannot detect variations if such occur.

### EXPERIMENTAL STUDY OF HERD-RESISTANCE.

In considering the part played by the relative resistance of the animal hosts, we may first inquire whether there is any evidence that the mice, which have survived exposure to risk during the course of an experimental epidemic, show a greater average resistance to infection with the causative organism than that possessed by a similar sample of normal mice.

The first experiments bearing upon this question were concerned with the spread of mouse-typhoid. They were carried out by initiating an epidemic of this disease among a herd of mice, allowing the epidemic to subside, waiting for a further six weeks, and then adding normal mice to the survivors in the proportion of 4 to 1. The course of events was then observed for a further three and a half months, and the deaths among the survivors and added mice were recorded. One such experiment is recorded in Chart 10. The initial epidemic and the secondary wave of mortality, which occurred some weeks after the addition of the normal mice, are fully recorded.

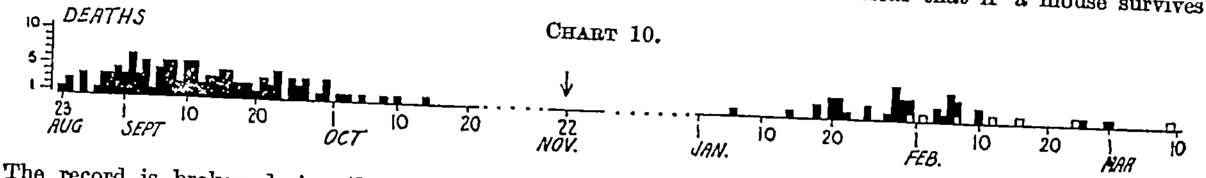


CHART 10.

The record is broken during the quiet interval to economise space. Each black square corresponds to the death of an added mouse. Each white square corresponds to the death of a survivor from the original epidemic. It is clear that, in the secondary wave of mortality, the newcomers were first affected. It was only towards the end of this secondary epidemic that the survivors from the original outbreak succumbed to the disease. When the experiment was discontinued 39 out of 44 newcomers had died, a mortality of 88·6 per cent. Among the survivors the deaths numbered 7 out of 11 mice, or 63·6 per cent. It is, however, the time-to-death rather than the total mortality which must be regarded as significant, since the numbers exposed to risk were small. The deaths of several survivors during the later stages of the secondary epidemic suggest that the relative resistance possessed by these animals, which enabled them to withstand the earlier stages of the secondary spread of infection, was insufficient to ensure their survival over a more prolonged period.

These observations were closely paralleled by the observations of Amoss,[21] to which reference has already been made. In the experiments in which he added normal mice to a population infected with mouse-typhoid he found that the death-rate among the added mice was always greater than among the survivors from the earlier periods. The occurrence of numerous deaths among these surviving mice, after long periods of exposure, showed that their increased resistance did not ensure them against a fatal attack of mouse-typhoid during the later stages of the epidemic.

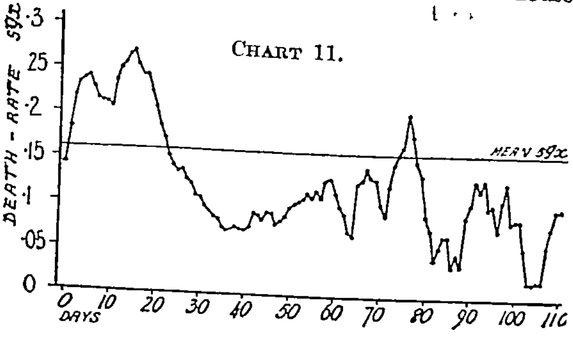


CHART 11.

With regard to pasteurellosis, the available data give a clear answer to the main question at issue. In the experiments which Dr. Greenwood and I have carried out on this disease the death-rates after varying periods of exposure to risk have been calculated for each epidemic. Chart 11 shows the fluctuation in the death-rate, calculated as the probability of dying from pasteurellosis within the next five days, for all mice in the experiment in which three normal mice were added to the cage each day. The horizontal line indicates the mean value of this death-rate. It will be seen that the probability of dying within the next five days at first rises steeply, reaching a first maximum on the fifth day, and a second and higher maximum on the fifteenth day. It then falls steeply, and from about the thirtieth day onwards the death-rate runs a general course well below its mean value for the whole experiment. There are, however, marked fluctuations. The death-rate rises and falls steeply, but never approaches the level attained on the fifteenth day, and only once exceeds the mean value during the period covered by the chart. It is clear that if a mouse survives exposure to risk for the first 30 days its chance of dying within a short interval of time has markedly decreased, or conversely its expectation of life has improved. This must mean that its resistance to the average force of mortality existing in the cage is greater than the average resistance of more recently added animals. Whether the later fluctuations are significant, and their meaning if significance be established, are questions which cannot yet be answered. The relatively small numbers at risk during the later periods of exposure do not allow us to lay much stress on these movements, but they indicate that, as in the case of mouse-typhoid, prolonged exposure to risk is no insurance against a fatal attack of pasteurellosis.

These results prove that the *average* resistance of the survivors of a herd which has been submitted to the action of an epidemic of mouse-typhoid or of pasteurellosis is raised as the result of the experience through which they have passed. Is there any evidence that the resistance of each or any of the surviving individuals has also been raised? In other words, has the herd-immunisation resulted purely from selection, from the elimination by death of its more susceptible members, or have some proportion of the individuals of which the herd is composed passed through an immunising process? It is natural to suggest that the two processes are probably combined, that some form of non-fatal infection leading to increased resistance is involved, and that such sub-acute or latent infection is more likely to be established in those mice which are endowed from the outset with a relatively high grade of resistance. Such a priori assumptions, however, can serve only as working hypotheses, and it is in any case necessary to separate these two factors as clearly as possible and to assess their relative importance.

The obvious starting point of our inquiry is to determine the normal variation among mice of resistance to infection with the causative organism concerned, but this is no easy matter. In the case of *B. aertrycke* infection, the large series of experiments carried out by Webster afford a mass of carefully collected evidence which is seldom available in investigations of this kind. Proceeding by the method of intrastomachal inoculation, Webster[26-30] has infected very large numbers of mice with a constant dose of *B. aertrycke* and has observed the subsequent course of mortality. In this way he has been able to construct a curve showing the daily progress of mortality among the infected animals and the percentage of survivors at the end of the period of observation, which has usually extended over 60 days.

As the result of testing numerous samples of normal mice, each containing between 20 and 50 animals, he concludes that the time distribution of deaths and the final percentage of survivors are constant within narrow limits for any one strain of inbred mice. From a careful survey of the records contained in Webster's reports, and from the results obtained by Lockhart, it appears to us that the actual deviations encountered are quite considerable. In constructing this curve, which he refers to as the "standard curve" for any strain of mice, Webster has plotted percentage mortality against time. It is clear that the figures could be plotted as a frequency curve showing the proportion of the total deaths occurring on each day. As we shall see, Webster makes use of such a curve in discussing the significance of his results.

It is clear that Webster's results present a record of the variations in the number and time distribution of deaths among normal mice, following the particular method of infection employed, which is of the greatest value when we wish to compare the fate of two samples of mice under different experimental conditions. Whether this is necessarily a record of the normal variation in *innate* resistance within the sample is, perhaps, not quite so certain. It may well be so, and such an assumption seems very natural, but it is necessary to inquire whether these differences may not be due in part to chance factors or to some transient physiological condition, so that a mouse which showed more than average resistance when tested at one time might show less than average resistance if tested at another. It is, for instance, not unlikely that the result of inoculating a bacterial suspension directly into the stomach may be determined in part by the physiological condition of that viscus at the moment when the suspension is introduced. It is quite probable that the outcome of an intraperitoneal inoculation may be influenced by the temporary position of the omentum or by the subsequent movements of this structure, which appear themselves to be governed by the movements of the abdominal wall and of the intestines. More general factors, such as fatigue or the existence of some unrelated infection, may account for a temporary variation in the normal resistance towards the particular parasite injected.

We cannot solve this question by direct experiment, because the successive trials would not be independent. It is evident that any mouse which had survived a single infection with a particular bacterium might, as a result of that experience, possess an altered resistance to subsequent inoculation of the same organism. It is clear, however, that if simple selection is to be effective in increasing the average resistance of a herd, the mice which have survived any given exposure to risk must have done so in virtue of lasting characters, which will enable them to withstand further exposure, and not because of some transient condition or chance event which will leave them, on the average, as susceptible as their fellows.

Webster has sought evidence of the existence of an innate and heritable resistance to enteric infection along other lines. He has carried out experiments in selective breeding [33] [34] from the results of which he concludes that it is possible, in this way, to obtain strains of mice more resistant or more susceptible than unselected animals from the parent stock. For details of these experiments reference must be made to his reports, but the results recorded do not appear to us to form an adequate basis for any final conclusion, partly because the samples tested in each generation were very small, and still more because there is no evidence that the increase in resistance or in susceptibility becomes progressively more marked in successive selected generations.

Webster and Pritchett,[35] [36] as the result of a large series of experiments, have arrived at the conclusion that strains of inbred mice show marked differences in their resistance to mouse-typhoid. Lockhart, who has recently analysed these results, has pointed out that the differences between the mean percentage mortalities observed in the different strains of mice, approximate so closely to the standard deviations of the percentage mortalities observed in different samples of the same strain, that the results cannot be regarded as certainly significant

We are left, then, with our main question unanswered, in the sense that it has not, at least in our view, been clearly demonstrated that there is an innate variation in the natural resistance of mice to a particular bacterial infection of such a nature and degree that a selective increase in the average resistance of the herd would inevitably result during the passage of a wave of mortality due to the bacterial parasite in question. We do not, of course, suggest that there is any evidence against the existence of such innate differences in resistance; indeed, we should be surprised if further investigation showed the part played by this factor to be negligible or unimportant. The recent experiments of Hirszfeld [45] on the inheritance of immunity, or immunisability, to diphtheria offer suggestive analogies. For the moment the only possible verdict appears to us to be "non-proven."

Turning to the alternative hypothesis, the active immunisation of individual mice during the progress of an epidemic, with a resulting increase in the average resistance of the herd of which they form a part, the available data allow us to arrive at a rather more definite conclusion, at least, in the particular case of mouse-typhoid. Numerous experiments have been performed on the immunisation of mice by the administration of dead or living cultures of *B. aertrycke* by Webster, Neufeld, Lange and Yoshioka, ourselves, and others. Webster's series of experiments have been particularly thorough and extensive. The available data on this question have recently been summarised by Neufeld,[46] and by Topley and Wilson.[14]

We are not for the moment concerned with the effect of the administration of dead organisms. Confining our attention to the results of administering living cultures by various routes, we find that there is ample evidence that mice which have been so treated, and which have survived the treatment, are more resistant to subsequent infection than are normal controls. But, here again, we cannot altogether escape the horns of our dilemma. Are these treated and surviving mice more resistant than the controls because they have been immunised, or because their originally high resistance has enabled them to withstand the original infection? The data available do not allow us to come to a conclusion on this point which is statistically unassailable, but a careful survey of the protocols of the experiments referred to strongly suggests that some part at least of the increased resistance is due to active immunisation. In some experiments, for instance, the surviving mice have withstood a dose of *B aertrycke* which has sufficed to kill all the inoculated controls, so that it is difficult to ascribe their increased resistance to selection alone. An even more important consideration, in our view, is the fact that it has been clearly demonstrated that the animals which have survived experimental inoculation have not, for the most part, escaped infection but have resisted it, and are in fact harbouring the causative organism in their tissues. It appears to us highly improbable that the existence of such a latent infection should be without influence on the results which follow the subsequent reception by these mice of further doses of the same bacterium In this connexion we would call particular attention to the experiments which have been carried out by Morgenroth [44] and his colleagues on superinfection. In a considerable series of experiments, in which mice were infected with sub-lethal doses of particular bacteria and were subsequently reinoculated with the same, or with closely allied organisms, these workers were able to demonstrate a significant increase in average resistance among the chronically infected mice. It seems possible that we shall gain valuable information with regard to the mechanism of active herd immunisation by investigation along these lines.

If the increased resistance shown by the mice which have survived exposure to risk be due, in large part, to active immunisation resulting from a non-lethal infection, we should expect that they would show evidence of the infection through which they had passed, or which they were still supporting. Clearly the most satisfactory evidence of the existence of such an infection would be provided by the isolation of the causative organism from the tissues. In numerous experiments on mouse-typhoid the mice surviving at the termination of an epidemic have been examined post mortem and cultures have been taken from their spleens. The results obtained are summarised in Table V., together with the results obtained in the case of individual mice which have been submitted to experimental infection. In the latter series are included the results recently obtained by Lockhart. The figures need little comment. It is clear that the majority of the mice which have recently passed through an epidemic of mouse-typhoid have not escaped infection, nor completely recovered from it, but are still harbouring the causative organism in their tissues. Their position in this respect is similar to that of mice which have survived for periods of two to six weeks after the experimental administration of *B. aertrycke* by inoculation or by the mouth. Other evidence, indicative of the wide incidence of infection among the mice at risk during the epidemic spread of this disease, has been afforded by the demonstration of agglutinins for *B. aertrycke* in the blood of surviving animals. Amoss found that 37 out of 56 mice which had survived a single epidemic wave possessed agglutinins for *B. aertrycke* in their blood.

TABLE V.—*Showing the Proportion of Positive Spleen Cultures among Various Groups of Surviving Mice.*

| Group. | Survivors left alive— | Number of mice in group. | Number of mice with positive spleen cultures. | Percentage of mice with positive spleen cultures. |
|---|---|---|---|---|
| 1 | After 11 epidemics of mouse-typhoid lasting from 60 to 117 days .. . .. | 267 | 190 | 70 |
| 2 | 21 days after intraperitoneal or subcutaneous inoculation of *B. aertrycke* (moderate doses) . .. .. . | 50 | 44 | 88 |
| 3 | 14 days after intraperitoneal inoculation of $10^7$ *B. aertrycke* | 40 | 40 | 100 |
| 4 | 14 days after intraperitoneal inoculation of $10^5$ *B. aertrycke* | 114 | 109 | 95·6 |
| 5 | 14 days after intraperitoneal inoculation of $10^3$ *B. aertrycke* | 280 | 232 | 82·9 |
| 6 | 14 days after intraperitoneal inoculation of 10 *B. aertrycke* | 213 | 95 | 44·6 |
| 7 | 42 days after one feeding with $20 \times 10^6$ *B. aertrycke* .. .. | 98 | 60 | 61·2 |
| 8 | 43 days after one feeding with $2 \times 10^6$ *B. aertrycke* .. .. | 39 | 13 | 33·3 |
| 9 | 42 days after three or four feedings with $2 \times 10^6$ *B. aertrycke* .. .. .. | 59 | 39 | 66·1 |

Finally, we would draw attention to an experiment, already referred to, in which we obtained detailed records of the daily excretion of *B. aertrycke* in the fæces of all mice at risk during an epidemic which was maintained for a period of 117 days by the daily addition of one mouse to the cage. The total number of mice at risk during this period was 135, excluding 5 infected mice which were employed to initiate the epidemic. Of these, 55 were alive when the experiment terminated. Of the whole number at risk 122 yielded evidence of infection by dying of mouse-typhoid, by excreting *B. aertrycke*, by yielding a culture of this organism from the spleen when killed at the termination of the experiment, or by the presence of agglutinins in their blood. Only 13 mice failed to show any evidence of infection with *B. aertrycke* by any of the methods of examination applied. Of these, 6 mice had resided in the cage for less than 14 days when the experiment was terminated, while one mouse, whose sojourn in the cage was 27 days, was devoured by its companions and could not be examined post mortem. Thus among 121 mice‡ which had been exposed to the risk of infection for 14 days or more only 6 failed to yield evidence of a reaction to the presence of the parasite.

There would appear to be little doubt that during an experimental epidemic of mouse-typhoid the great majority of mice exposed to risk become infected within a short time of their entry to the cage, and that a high proportion of those mice which withstand such infection continue to harbour *B. aertrycke* in their tissues for a considerable period. Such survivors have been shown to possess an increased average resistance to the disease as naturally acquired. We are far from denying the existence and possible importance of simple selection based on innate differences in resistance, still further from neglecting the possibility that there may be natural variations in the capacity of mice to become actively immunised; but it seems to us that we are on surer ground in attributing some part, at least, of the relative immunity of the surviving animals to active immunisation.

## EXTRINSIC FACTORS.

We have suggested that variations in the infective power of the parasite, or in the resistance of the host, by no means exhaust the possible interplay of factors which determine the sequence of events in our herds of mice. We have as yet little information on such matters as the possible influence of microbial association, or of other factors which might result in a shifting equilibrium between parasite and host. In the case of mouse-typhoid we have carried out experiments on the possible rôle of the bacteriophage in the epidemic spread of this disease, but our results have been entirely negative.

Webster[34] has obtained evidence pointing to the importance of dietary factors in determining the incidence of infection with *B. aertrycke.* The interest and importance of such observations are obvious, but it seems unlikely that dietary factors can play any part in the fluctuating sequence of events which we have observed in our long-continued epidemics, since no change has been made in the nature and amount of the food-supply to the mice at risk.

On the basis of the evidence outlined above, we do not seem to be justified in going beyond the following conclusions.

In the case of mouse-typhoid, variations over a wide range in the size of a single dose of bacteria administered to mice by feeding, or by inoculation into the tissues, appears to have very little effect in determining the outcome of infection. There is a suggestion that the same holds true for mouse-pasteurellosis. It by no means follows that variations in the number of bacteria received by susceptible hosts during the natural spread of infection are unimportant. Under such circumstances, not only the size of individual doses, but the effect of a succession of doses, and the rate at which they are received, must be taken into consideration.

Variations in the virulence of *B. aertrycke* and of *Pasteurella muris* certainly occur. Whether such variations play any part in the natural spread of infection remains to be determined.

Mice which have survived exposure to risk during an epidemic of mouse-typhoid or of pasteurellosis show an increased average resistance to continued exposure to risk, as compared to normal mice which have not been so exposed.

When a sample of normal mice are tested by the inoculation of *B. aertrycke* into each mouse the response varies, and the variation may be studied by observing the time distribution of the deaths and the final percentage of survivors. It is not clear in how far this variable response depends on innate characters in the mice, on transient physiological conditions, or on the interaction of chance factors, so that we cannot be certain that the passage of a wave of mortality will leave survivors which were possessed, *ab initio*, of a high degree of resistance of a durable kind, and will so increase the average resistance of the herd by a process of simple selection. This problem still awaits solution.

In the case of mouse-typhoid there is ample evidence that the great majority of any given sample of surviving mice have not escaped infection, but have resisted it. A high proportion of these mice are found to be supporting a latent infection with *B. aertrycke.* There is evidence that mice which have withstood individual experimental infection with *B. aertrycke* are far more resistant than normal mice to subsequent infection with this organism. It is, therefore, probable that active immunisation, following non-lethal infection, plays a considerable part in the increase of the average herd-resistance which follows exposure to an epidemic of enteric infection.

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‡ This figure was incorrectly given as 135 in a previous report.

It is probable that additional factors not connected with dosage of the parasite, nor with variations in the biological characters of the parasites or hosts, play a part in the spread of epidemic infection. With the single exception that a bacteriophage, active against *B. aertrycke*, seems to have little influence on the course of events in epidemics of mouse-typhoid, we have as yet no information on this aspect of the problem.

When we attempt to give quantitative expression to any of the factors which are concerned in the spread of infection during an epidemic of disease, these factors must be measured not as absolute quantities, but in terms of probability. It seems certain that chance plays a large part in the sequence of events which we have observed and described, but this sequence is sufficiently orderly to suggest that an adequate knowledge of the various probabilities involved would allow us to give a generalised description of the interactions concerned.

*Bibliography.*—The bibliography to Lectures I., II., and III. appeared in THE LANCET of March 6th, p. 481.

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# An Address
## ON THE TREATMENT OF MALIGNANT DISEASE WITH LEAD.*

*Delivered before the Glasgow Gynæcological and Obstetrical Society*

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*Together with a Comment by*

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IN previous communications the scientific views on which this work is based have been fully explained and weighty confirmatory evidence—experimental and clinical—has been adduced in support of the statements made.[1, 2, 3, 4, 5, 7] A paper concerning the toxic effects of lead administered intravenously has also been published.[6] We are now in a position, therefore, to discuss at some length our methods of procedure and our clinical results which, after all, are the ultimate test of all cancer research.

It must not be forgotten, however, that so far the treatment of our cases has been largely experimental and tentative in nature, and that, as might be expected, the results have been uneven and the failures and misfortunes many. *Indeed, we ourselves regard the results obtained in the treatment of the first 200 cases, mostly hopeless, merely as affording confirmatory support to the rest of the evidence pointing in the same direction, and not as being the outcome of a test of the merits of a new treatment.* Furthermore, we must insist that we make no claims whatsoever in regard to the general curability of cancer by the use of lead: we simply state the facts.

On Nov. 9th, 1920, the first intravenous administration of lead was given to a patient with an advanced breast carcinoma. Providentially this case proved, one of the most interesting and striking of the whole series; and the importance of the result was none the less in that it gave us the stimulus and encouragement necessary in our dealings with the numerous dreadful cases of malignant disease that soon came under our care.

In passing we cannot refrain from saying that we know of no disease that produces so depressing an effect on those continually associated with it as cancer. The pitiable plight of the patients, the pain and discomforts that follow the involvement of important organs are such as to produce a profound impression on the mind of the patient, even though she may be unaware of the nature of the disease. Unfortunately, this is sometimes known, and when the patient has reached the depth of despair, it makes it difficult to persuade her that the faintest chance remains. Standing out against this in the brightest contrast we have seen wonderful heroism, even optimism, in some of those whose chance seemed slender. We feel that we must be allowed to say so much, because it may make clear to those, even to members of our own profession who appear not to have understood, how extremely reticent we have felt it necessary to be in order not to raise false hopes amongst the millions of sufferers with this disease who are scattered over the entire world.

As stated by one of us in the previous publication,[7] we believe that evidence has been obtained in many directions confirming the correctness of the lines on which we have worked and are still working. In these circumstances the moderate success we have obtained so far in the treatment of cancer may justify the guarded publicity we now give to our clinical work, even though it still appears an impossibility that cancer should be treated empirically with lead; we have already emphasised the dangers and difficulties of our methods.[6] In short, despite the pressure brought to bear, we do not think the time is yet ripe for the general employment of lead, for a vast amount of work, experimental and therapeutical, still remains to be accomplished. We have no doubt that the preparation of lead in colloidal form for intravenous injection will be vastly improved, or lead be administered in another form; and we recognise the possibility that some other substance may be found to act in the same way as lead on malignant neoplasms, but with less toxicity towards other tissues of the body.

### METHODS OF PROCEDURE.

### *Records of the Patients.*

The work has been conducted on lines laid down at the commencement, special case-cards having been printed in order that a more or less uniform standard of detail should be obtainable. This we found of great value in summarising the toxic effects of lead.[4] On the case-cards all previous methods of treatment and the particulars of the present condition of the patient have been recorded, together with a full account of the examination of the body fluids and of any tissue removed for section. In addition, specially printed forms have been at the disposal of Prof. Ernest Glynn, who has reported on all the material submitted for histological examination. In many cases, sections sent with the patient have been re-examined and described in the light of subsequent events. Moreover, Dr. R. E. Roberts has examined radiologically a large number of the patients about whom it seemed likely that further information could be obtained by this method. Medical examinations, too, have been conducted in many cases by Prof. John Hay and Dr. L. Cunningham, and biochemical investigations by Dr. R. Coope and Dr. Cunningham. We have thus endeavoured to obtain all the evidence that would guide us in the subsequent treatment of our patients.

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* This investigation was undertaken on behalf of the Liverpool Cancer Research Committee.

[1] Bell, W. Blair: THE LANCET, 1922, ii., 1005.

[2] Bell, W. Blair: Ibid., 1924, i., 267.

[3] Corran, J. W., and Lewis, W. C. McC.: Biochem. Jour., 1924, xviii., 6.

[4] Lewis, W. C. McC., and Corran, J. W.: Ibid., 1924, xviii., 6.

[5] Bell, W. Blair, Hendry, R. A., and Annett, H. E.: Jour. Obstet. and Gynæcol. Brit. Emp., 1925, xxxii., 1.

[6] Bell, W. Blair, Williams, W. R., and Cunningham, L.: THE LANCET, 1925, ii., 793.

[7] Bell, W. Blair: Ibid., 1925, ii., 1003.

### *Indications for, and Contra-indications to, the Treatment of Patients with Lead.*

*Extent of the Malignant Growth.*—In regard to this question it may be said in general that a large amount of malignant tissue is not necessarily a bar to treatment, provided other conditions permit this course to be taken; but secondary involvements of the lung and the brain may be an absolute contra-indication. It will, moreover, be shown that serious accidents may occur when certain vital organs are affected, if the disappearance of the growth be too quickly accomplished.

*Condition of the Patient.*—The general condition of the patient must be viewed from several angles. First it is necessary to take into account the state of certain organs which, although unaffected by the malignant disease, may be subject to pathological lesions due to other causes, rendering treatment unduly dangerous; chronic nephritis is by far the most important of these lesions. Secondly, pressure on the common bile-duct by cancer of the head of the pancreas may produce a condition in the liver that makes it unwise to inject lead until the jaundice, mechanically produced in this way, has been relieved. Thirdly, we must take into consideration the constitutional state produced in the patient by long-standing malignant disease. As will be shown directly, many of our cases have died, some before treatment, others very shortly after the commencement, and, again, a number before lead in quantity considered sufficient to overtake the disease could be administered. At first we rejected *no one*—hence many unhappy incidents.

To-day we feel it is not right to prejudice any longer the method by dealing with totally hopeless cases—cases that after trial of every known form of treatment have been sent to us in the vain hope that the day of miracles is not past. At the same time it is not possible, nor humane, for us to adhere to any rigid line of demarcation. Yet, with our experience behind us, we have come to recognise those cases in which there is a prospect of relief; and by this we mean those in which the arrest of the disease may be possible, or in which there is a chance of causing the disappearance of the growth. It appears that in regard to tumours that have a good blood-supply, if the patient be in good condition, and the growth is not larger, say than 5 per cent. of the body-weight, hope may be entertained, provided we invoke, in certain cases, the aid of surgery and radiation.

In order that we may not be misunderstood it should be stated that, whenever possible, we like to remove as much of the growth as we can before commencing treatment with lead, but, of course, such a procedure is not eradicative. There is no doubt that lead, as might be expected, is quantitative in its method of action. Although we do not believe that small doses of lead increase the rapidity of the growth, as do X rays and radium, it is quite useless to give an insufficient quantity; hence our reason for wishing first to get rid of as much of the malignant tissue as possible.

### *Nature of the Preparation Used.*

From November, 1920, to April, 1921, a number of imperfectly colloidal preparations of lead were used; still some appear to have been quite effective. Nevertheless, in the incompletely colloidal state the general toxic effects on the patient appeared to be more serious and common than now, when we use the metal properly protected; but, as the method of dosage has varied, it is impossible to make an accurate comparison.

In the earlier preparations we employed lead iodide in which the iodine was obtained from thyroiodin by the action of lead on this substance. A compound of lead with hæmoglobin, which we hoped would protect the blood and the blood-forming organs, was also used. This, however, undoubtedly had toxic properties of its own, no doubt due to the hæmoglobin obtained from animals, which substance appears to be more or less generically specific. We also used compounds of lead oleate and lead "morrhuate" for intramuscular injection. These were abandoned because they appeared to be unabsorbable.

Finally, Prof. W. C. McC. Lewis and his associates, Dr. J. W. Corran and Dr. M. Jowett, found it possible to make a good electrical suspension of metallic lead in an aqueous medium with gelatin (0·4 per cent.) and calcium chloride (0·027 per cent.) by Bredig's sparking method, as described and discussed two years ago.[3] We at present employ about 20 amps., under 70 volts. The final product after centrifugalisation to get rid of particles larger than 0·2 $\mu$ is made hypertonic by the addition of sodium chloride (2·0 per cent.), potassium chloride (0·05 per cent.) and calcium chloride (0·027 per cent.), and is sterilised by boiling. The strength of this preparation, known as $S_7$, is adjusted by dilution with the sparking solution to contain 0·5 per cent. of Pb.[†] We are not yet satisfied about the stability of the preparation now used, and the physical chemists hope to improve it, and eventually to render it sufficiently stable for distribution.

It is still sometimes asked, although we have previously explained the matter, why we use a colloidal preparation. We have already indicated that lead ion is very toxic.[4] Had we pursued the question we might have discovered a preparation better than lead morrhuate for the administration of lead intramuscularly, but we are sure it would not have been so effective as the intravenous injection of perfectly protected lead. The whole object of using a colloidal preparation is to deliver the lead slowly to the highest bidder, as it were, among the body tissues—this we believe to be the malignant cell—in quantities with which they are able to deal as it is released to them. It is highly probable that our preparation dissociates quite slowly in the blood stream, and this matter is under investigation by Prof. Lewis and his associates.

### *Methods of Introduction and Dosage.*

*Intravenous Injection.*—It seems obvious that in the treatment of existing malignant neoplasia the best method of attacking the disease is through the blood stream; it is, indeed, the most rapid and inevitable way of reaching all the tissues of the body. Moreover, by the administration of a drug intravenously, we know that it is at least taken up by the tissues or immediately excreted. Drugs administered by the mouth, or injected into the tissues, are not always absorbed. Nevertheless, with regard to such growths as epitheliomata and scirrhus carcinomata of the breast, there is always present the difficulty that vessels are not in close proximity to the growing cells; indeed, this may be a contributory reason why the disease is present at all.[*] With sarcoma the matter is somewhat different, but in this disease, again, it is common to find large masses of growth inadequately supplied with blood-vessels.

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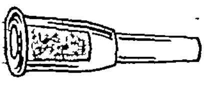
[†] Apart from the voltage, amperage, and percentage figures, which are of relative importance only, for they have undergone, and are still undergoing, frequent alteration—the figures given here being merely those recently in use—the whole method was described and discussed, as stated, two years ago in sufficient detail for anyone to have repeated and extended the work already done. It has, therefore, been a matter of considerable surprise to us to hear on all sides that the "method of preparation" has not been published. Such a statement reflects but little credit on those responsible for it, and demonstrates either that these critics have failed to read what has been published—an unpardonable omission—or that they are so ignorant of elementary physical chemistry that they have been unable to understand.—W. B. B.

As already indicated in a previous paper,[*] except at the very beginning, for about three years and a half we employed small doses not exceeding 0·04 g. of lead, and generally much less than this. Looking back we see that our earliest cases appear to have done well, but with a reduction of dosage good results became fewer and chronic poisoning more frequent. Subsequently to our work on the action of lead on the chorionic epithelium of the rabbit,[*] during which we found that the dose inevitably lethal to this epithelium was half of the fatal dose to the mother, we have employed what we describe as "massive doses."

Generally speaking, it may be said that in a patient of average size and of average susceptibility, and without hepatic or renal disability, a fatal dose of lead, intravenously administered, is in the neighbourhood of 35 to 40 c.cm. of the colloidal solution we now use—that is to say, the fatal amount of lead is a little more than 0·2 g. when administered in a single dose. It must, however, not be forgotten that patients with large tumours are less subject to the bad effects of lead than patients whose growth is small in proportion to the body-weight. We have seen patients with huge malignant growths tolerate lead in a surprising fashion, and we have, as previously stated, been able to analyse tumours from patients to whom large quantities of lead had been administered. In these investigations we found in the tumour a quantity of lead which demonstrated clearly that the greater proportion of that administered must have been attracted to it.

We observed that the administration of a total quantity of 0·27 g. of lead in repeated doses spread over a protracted period of about 18 months produced a certain cumulative toxic effect on the patient, which, as we have previously said, was difficult to combat. With the massive doses it is possible to give approximately 0·6 g. of lead in seven or eight doses during a period of four months without producing any serious ultimate consequences whatsoever to the patient. As a rule, our present practice is to give about four injections of 10–20 c.cm. of S, at intervals spread over a period of about six weeks, and subsequent doses are regulated according to the general and local conditions of the patient. Still, even at the time of writing we are experimenting with different quantities and intervals.

For the injection of this preparation, which is of a black or slatey colour, according to the amount of hydroxide and carbonate it contains as the result of contact with air, we have found the attachment shown in the figure, which we had made, and which we call an "interceptor," extremely useful; it is of glass and is fixed between the nozzle of the record syringe and the needle. The surgeon is thereby enabled to see the ascent of blood when the vein is reached; this was impossible before we used the interceptor. Those who have had an experience, such as we have, of many thousand intravenous injections, know the difficulties that may arise in the case of a fat woman.



*Ionisation.*—We have long used this method for the introduction of lead ions into superficial neoplasms. In certain cases in which there is extensive lymphatic invasion, such as is seen with carcinoma of the breast, there may be a diminution in the pain and a softening of the parts. Incidentally, we may call attention to the fact that Borrel[*] has recently shown that of all the metals used for the ionisation of rat sarcoma, lead is not only by far the most effective, but almost invariably causes the disappearance of the tumour. Dr. H. E. Annett, working with us, has obtained similar results by the ionisation with lead of this type of tumour.

There is some doubt as to the penetrating power of the lead ion in these circumstances, but we cannot disregard the results we have occasionally seen. The quantity of lead that is passed into the tissues in the circumstances in which we have used this method has amounted to 0·003 g. at one sitting of 15 minutes. In one or two cases we have ionised the tumour itself, or the site from which it had been removed by the insertion of one electrode into the mass or cavity, as the case may be.

*Intramuscular Injection.*—We shall not discuss the method of intramuscular injection which has been employed, for we have ceased to use it for the present, owing to the pain caused and to the unabsorbable nature of the material.

### ACCOUNT OF CASES TREATED.

In all 247 patients were seen in the period under review. Of these 227 have received treatment. In Table I. an age classification is given; in Table II. the types of malignant disease treated are shown; in Table III. the ultimate, or present, fate of the patients is made clear; and in Table IV. is shown the sex and the type of disease that has been benefited by treatment.

TABLE I.—*Age Classification.*

| Years. | Males. | Females. |
|---|---|---|
| Under 10 | 4 | — |
| *10–20* | 4 | — |
| 20–30 | 6 | 5 |
| 30–40 | 7 | 18 |
| *40–50* | 16 | 43 |
| 50–60 | 21 | 55 |
| 60–70 | 13 | 23 |
| Over 70 | 4 | 8 |
|  | 75 | 152 |

Number of patients: males, 75; females, 152; total, 227.

TABLE II.—*Sites of Growths and Sex of Patients.*
*Carcinoma:* Males, 53; females, 130.
*Sarcoma:* Males, 22; females, 10.

| Sites of the growths. | Cases. | Females. | Males. |
|---|---|---|---|
| Mouth and tongue | 9 | — | 9 |
| Cheek | 2 | — | 2 |
| Œsophagus | 8 | 1 | 7 |
| Stomach | 16 | 4 | 12 |
| Small intestine | 1 | 1 | — |
| Large intestine | 7 | 5 | 2 |
| Rectum | 18 | 7 | 11 |
| Liver and bile passages— |  |  |  |
| Liver | 2 | 2 | — |
| Gall-bladder | 2 | 1 | 1 |
| Pancreas | 4 | 1 | 3 |
| Nose and nasopharynx | 3 | 2 | 1 |
| Larynx | 2 | 2 | — |
| Lungs and bronchi | 1 | 1 | — |
| Mediastinum and mediastinal glands | 5 | 3 | 2 |
| Breast | 49 | 49 | — |
| Uterus— |  |  |  |
| Body | 7 | 7 | — |
| Cervix | 38 | 38 | — |
| Ovary | 11* | 11 | — |
| Vagina and vulva | 3 | 3 | — |
| Male genitals | 1 | — | 1 |
| Kidney | 2 | 1 | 1 |
| Bladder | 1 | — | 1 |
| Bones: Upper jaw— |  |  |  |
| Carcinoma | 5 | 3 | 2 |
| Sarcoma | 1 | — | 1 |
| Scapula | 3 | — | 3 |
| Ilium | 2 | 1 | 1 |
| Femur | 5 | 1 | 4 |
| Humerus | 1 | — | 1 |
| Tibia and tarsus | 1 | — | 1 |
| Orbit | 1 | — | 1 |
| Glands— |  |  |  |
| Neck | 6 | 2 | 4 |
| Axilla | 4 | 4 | — |
| Subcutaneous tissues | 7 | 2 | 5 |

* Two were sarcomata.

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[*] Wolbach, S. B.: Jour. Med. Research, 1909, xxi., 415.

[*] Borrel, A., Conlon, A. de, and Bocz, L.: Compt. Rend. de la Soc. de Biol., 1922, lxxxvii., 1118.

### TABLE III.

*Fate of Patients: Nov. 9th, 1920–Nov. 9th, 1925.*

| | Cases. |
|---|---|
| 1. Admitted, but died before treatment could be commenced | 20 |
| 2. Died before treatment could be completed | 50 |
| 3. Died of intercurrent affections | 3 |
| 4. Died after treatment (including two deaths from acute nephritis the result of lead poisoning) | 106 |
| 5. Died as a result of extensive destruction of growth by lead | 4 |
| 6. Too recent for results to be estimated | 14 |
| 7. Complete treatment refused, but patients are living normal lives | 9 |
| 8. Disease completely arrested | 10 |
| 9. Believed cured, and treatment stopped | 31 |
| | 227 |

A brief discussion of these groups is necessary.

### *Cases which Died before Treatment could be Commenced.*

In our anxiety not to refuse any case that came to us for treatment, we admitted some who were so ill that they died during the few days devoted to the preliminary investigations of their general condition—before any lead could be administered. In reviewing the statistics of the cases treated, it must constantly be borne in mind that nearly every case which came to us had been condemned as hopeless, every other known avenue of treatment having previously been explored.

### *Cases which Died before Treatment could be Completed.*

Death took place in a large number before adequate treatment could be given, the general condition of the patients being unsatisfactory from the first. In 43 cases death occurred before 0·2 g. of lead had been administered, and many of these received considerably less than this quantity, the average amount being 0·116 g. This group should, therefore, be completely excluded from any estimation of the beneficial effects of the method of treatment under discussion.

### *Cases that Died of an Intercurrent Affection.*

The following are two examples.

CASE 2.—A female, aged 61, was admitted with a large growth in the right breast, ulcerated, and fixed to the chest wall. There was a large mass in the axilla, and the supraclavicular glands were involved. She had only five injections, making a total of 0·2 g. of lead. A very considerable improvement took place; the growth appeared to be shrivelling up, and the glands in the axilla became softer and more discrete. The patient returned home for Christmas (1020), contracted pneumonia, and died. Her own doctor, who examined the growth immediately after death, reported that it had shrunk to about one-third of the original size.

CASE 26C.—The patient was a man, 71 years of age, with four months' history of increasing dysphagia with persistent loss of weight. X ray examination showed marked obstruction at the cardio-œsophageal opening. The Wassermann reaction was negative. The total quantity of lead given amounted to 0·28 g. There was marked clinical improvement, and the patient was able to swallow tolerably well, but he died from pneumonia six months after the commencement of treatment.

### *Cases which Received a Considerable Amount of Treatment but Ultimately Died.*

This group of cases—necessarily a large one—may be viewed from two points: (1) lead had no action on the malignant growth present; (2) our methods of treatment are imperfect.

There can be little doubt, we think, in view of the clinical evidence obtained, that lead has specific action on malignant neoplasia *if it can reach the growing cells*, so we can only conclude, and indeed we know, that our methods of treatment are far from perfect, and that some of our failures are due to this cause, especially in the early cases, when we often gave too small doses, or for some reason lead failed to reach the growth in a sufficient quantity to cause arrest or disappearance.

From what has been said it will be clear that the more avascular a tumour is the less chance there is of our dealing successfully with it, unless we can induce the malignant cells to take up the lead. We have employed a variety of expedients, such as fibrolysin and thyroidin for this purpose. Nevertheless, this difficulty still remains to be overcome.

In this group two cases from our series may be taken to illustrate another difficulty. Both these patients had protracted treatment, but the total amount of lead given was not great, as at that time we were using only small amounts of colloidal lead. They both showed very definite signs of improvement, but for various reasons the patients were unable to continue the injections.

CASE 111.—The patient was a youth, 18 years of age, with advanced sarcoma of the scapula. X rays showed that the scapula was almost completely decalcified, and a portion of growth removed for section confirmed the diagnosis. After 0·13 g. of lead had been administered together with a few exposures to X rays, the tumour began to disappear, and very shortly afterwards the whole scapula re-formed and ossified, as shown by a series of skiagrams. The patient then ceased treatment for a time, but returned two months later with a small, but obvious, recurrence. In view of the fact that X rays had been helpful before, it was decided not to give the patient any lead, but to try the effect of X rays alone. The tumour did not respond, so injections of colloidal lead were again given, and a second time the tumour began to disappear and the scapula to re-form. The patient, who lived at a distance, was unable to continue the treatment, and again there was a recrudescence of the growth, metastases developed, and he died.

CASE 125.—This was a school-boy, aged 13 years, who had had his leg amputated two months previously for a sarcoma in the lower end of the femur. He was sent to us almost before the incision had healed with a recurrence in the cut end of the bone. He received 0·13 g. of lead, and X ray treatment to the stump. All the swelling disappeared, and a skiagram showed that the bone end was practically normal. He was discharged as cured. Twelve months later he reappeared, with large secondary masses in the abdomen and chest, but the condition of the stump itself was quite satisfactory. To our amazement we heard many months later that he was still alive.

In the two foregoing cases we hoped that we had effected a cure, but in both instances we were afraid to push the treatment too far owing to the youth of the patients, although neither of them showed any dangerous sign of poisoning.

Another patient, for certain reasons, was unable to carry on with the treatment; and yet another, feeling himself so well, did not come to be seen by us until it was very obviously too late to resume the administration of lead.

We do not in these remarks intend to disguise the fact that the treatment with lead definitely failed in most of the cases in this group to bring about the desired result, although it must be said that in many changes occurred in the growths which we regard as significant.

### *Cases in which the Patient has Died as the Result of Extensive Destruction of the Growth by Lead.*

In the following cases the patients died as the result of the destructive action of lead on malignant neoplasms present. There were four definite instances of this.

CASE 153.—A young man, 22 years of age, who four months previously had had a partial gastrectomy for a small pyloric tumour, which subsequently proved to be a sarcoma, when admitted to our care, had an extension of the disease in the stomach, and the tumour was then of the same size as that of a football. After the administration of 0·09 g. of lead the abdomen suddenly became quite flat and no tumour could be felt. Two more injections were given, making a total of 0·15 g. of lead. One day, just three weeks after the commencement of the treatment, the patient complained of great abdominal pain, and became very pale and collapsed. He died the same night. At the post-mortem examination Prof. Ernest Glynn found some dark fluid blood in the peritoneal cavity, and that the tumour was replaced by a large black necrotic mass of the consistency of mud. The only part of the original growth from which a section could be made subsequently was a piece which had invaded the liver by direct extension.

CASE 12.—The patient was an old man of 77 years of age who had a history of a swelling in the buttock for the previous two years. On admission he was found to have an elastic swelling of the same size as that of a cocoanut under the gluteal muscle. A small piece was removed for section and was shown to be a very vascular sarcoma. Four injections, equivalent to 0·1 g. of lead, were administered. Three weeks after the commencement of the treatment he had considerable hæmorrhage from the exploratory incision. Blood was transfused next day, but he did not recover. The tumour was exposed after death and was found to be completely necrosed in its centre, and in the large cavity formed there was a mixture of blood-clot and broken-down growth.

CASE 174.—The patient was a woman, 57 years of age, who had a postcricoid carcinoma. She was quite unable to swallow; her voice, however, was unaffected. A preliminary gastrostomy was done, and in view of subsequent events it would have been better if a preliminary tracheotomy had also been performed. We administered intravenously 0·2 g. of lead in one dose. Hæmaturia followed, but the most serious symptom was dyspnœa, which rapidly increased. Three or four days later the trachea was opened, but the patient died a few hours afterwards. At the post-mortem examination the growth was found to be very œdematous and sections showed acute necrosis of the malignant cells which were lying in an œdematous stroma of loose connective tissue.

CASE 206.—The patient was a man, aged 58 years, with a large sarcoma of the left femur. Altogether he was given 0·31 g. of lead, including an initial massive dose of 0·2 g. An incision was made in the skin and 8 oz. of blood-stained material withdrawn on the day before he died. At the autopsy the tumour was found to have liquefied, and practically the whole of the original site of the tumour was occupied by hæmorrhagic necrotic material.

### *Too Recent for Results to be Estimated.*

Nothing need be said of the cases—14 in number—in which treatment had recently been instituted.

### *Complete Treatment Refused, but Patients are Living Normal Lives.*

It is an extraordinary fact that many patients, although aware of the nature of the disease from which they are suffering, frequently refuse to continue treatment. Either they lived at too great a distance to reach Liverpool easily, or the treatment already administered has produced colic, vomiting, and other unpleasant symptoms, which they are not prepared to bear again. At the time when these figures were collected, the nine patients were living and leading normal lives. We have not had information since that date that they are doing otherwise.

### *Disease Completely Arrested.*

In a number of cases, especially when the tumour was large, the effect of treatment appears to have been that the growth was completely arrested, but did not disappear. In such circumstances the patients have shown remarkable constitutional improvement, and have increased considerably in weight, sometimes by so much as 3 st.; and symptoms, the result of the disease, have disappeared, except such inconveniences as those produced by an intra-abdominal tumour of a certain size. The arrest of growth in the case of sarcoma may be very striking, and is undoubtedly evidence of the inhibitive action of lead on the development of such tumours. It is impossible, of course, to say that there will never be a reawakening of active growth in these circumstances, and possibly it would be good surgical practice to remove the latent neoplasm. Sometimes this would be a very difficult and dangerous proceeding, and the patient undoubtedly would prefer to continue in the state of improved health she has gained rather than run the risk of a fatal issue. There are 11 cases in this group, and their future welfare will be a matter of great interest and importance.

### *Cases Believed Cured.*

It is quite impossible to define the cure of cancer. To clinicians, though apparently not to laboratory workers, it is well known that the possession of a malignant growth successfully treated by surgical or other procedures does not confer on the patient immunity from subsequent neoplastic developments. In the experience of all surgeons a number of such cases occur; consequently it is clear that every patient who is cured of one malignant growth may develop another and require further treatment. This is the first point. The second point in regard to the difficulty of estimating what may be considered a true cure is the fact that a primary growth, apparently successfully treated, may develop on the same site, or in the form of a metastasis very many years later. It is evident, therefore, that the five-year period usually allotted to the demonstration of a cure of previously existing cancer is not valid, although flattering to surgical statistics. We therefore think it right and proper to describe our cases, which are now apparently perfectly well and give no evidence of disease in any part of their body, as "believed cured."

In Table IV. the cases summarised in sections 7, 8, and 9 of Table III. are shown in respect of sex and the nature of the malignant disease from which they suffered.

TABLE IV.—*Cases in which the Growth has been Completely Arrested, or the Patient is Believed to be Cured.*

Sections 7, 8, and 9 from Table III., 50 cases.

*Sarcoma.*—Number of cases, 6 (female, 4; male, 2).

*Site of Growth.*—Female: (1) small intestine; (2) uterus (body); (3) retroperitoneal tissue; (4) ovary. Male: (5) scapula; (6) connective tissue of thigh.

*Carcinoma.*—Number of cases, 44. Female: primary carcinoma, 32; secondary carcinoma, 7. Male: primary carcinoma, 4; secondary carcinoma, 1.

*Situation of Tumour.*

*Primary Carcinoma.*

| | | | |
|---|---|---|---|
| Breast .. .. | 14 | Body of uterus .. .. | 1 |
| Cervix .. .. | 9 | Œsophagus (male) .. .. | 1 |
| Rectum (female, 2; male, 1) | 3 | Fauces and pharynx (male) | 1 |
| Ovary .. .. | 2 | Gall-bladder (male) .. | 1 |
| Pancreas (female .. .. | 1 | Adenocarcinoma of fibromyoma and pelvic cellular tissue .. .. .. | 1 |
| Vulva .. .. | 1 | | |
| Stomach (female) .. .. | 1 | | |

*Secondary Carcinoma.*

| | |
|---|---|
| Glands in neck and axilla (secondary to breast) .. .. | 5 |
| Tibia (secondary to testicle) .. .. .. .. .. | 1 |
| Ovary (secondary to breast) .. .. .. .. .. | 1 |
| Peritoneum .. .. .. .. .. .. | 1 |

Brief summaries of the histories of a few of the more remarkable of the cases contained in Table IV. may be given. It is impossible in a paper of this character to give the complete histories of all the cases.

### *Examples of Cases in which the Growth has been Completely Arrested.*

These cases give indication of complete recovery, but have not been treated for a sufficient length of time to be regarded as cured. Every one of them had relatively large growths, and in one case the mass filled up the whole of the pelvis and a large portion of the abdomen.

CASE 178.—The patient was a woman of 38, who four months prior to admission complained of abdominal pain. A mass was discovered in the pelvis, and laparotomy was performed by a London surgeon, who found a very large vascular growth filling the whole of the pelvis and most of the lower part of the abdominal cavity. On account of the danger from hæmorrhage no portion of the tumour was removed even for section. On admission there was a large soft central tumour extending above the umbilicus, irregular in outline and filling the pelvis. She came under our care in December, 1924. A further laparotomy was done, and a small piece removed for section. Examination proved the tumour to be a short spindle-celled sarcoma, probably arising in the ovary. She was given 0·15 g. of lead at one injection. This caused most distressing toxic symptoms, both gastro-intestinal and urinary. Vomiting persisted for over a fortnight. Twelve days after the injection the abdomen was quite flat and only a small lump could be felt above the pubis. We should have liked to give her a further injection, but in view of the very serious symptoms which developed after the first it was considered necessary to delay treatment for a considerable time, and during the latter part of this period the lump increased in size. She has had further treatment, and although a mass of moderate size is still palpable, yet she looks and feels well, and is able to go about in the ordinary way.

CASE 185.—The patient was a young woman, 20 years of age, who herself discovered a lump in the abdomen. She came under our observation in March, 1925, when a laparotomy was done. A large retroperitoneal sarcoma was found, which was too vascular to be incised; a lymph gland was removed for diagnostic purposes. This was subsequently reported by Prof. Glynn to be sarcoma. Since that date she has had 0·05 g. of lead. Her general condition is very good. The lump is considerably smaller and is causing no symptoms.

CASE 177.—A woman, aged 52 years, was referred to us in November, 1924. She had some glycosuria, considerable jaundice, and there was a lump in the right hypochondrium. A laparotomy was performed, and a large mass felt in the head of the pancreas, and an anastomosis was done between the gall-bladder and the duodenum. She was subsequently treated with intravenous injections of colloidal lead. The jaundice has disappeared, and the glycosuria is considerably improved, and with the exception of one or two febrile attacks (? cholangitis) her general health is now very good. Distressing toxic symptoms developed after the last injection. The patient has gained over half a stone in weight. A section recently obtained shows scattered groups of a few atrophic cancer cells embedded in fibrous tissue.

### *Cases Believed Cured and Treatment Stopped.*

There are 30 cases which come into this group—3 males and 27 females. In a majority they were treated with injections of colloidal lead only. Two of them were treated with X rays in addition. Twelve cases had partial operation—that is to say, a removal was attempted but a considerable amount of malignant tissue was still left behind, and the patient was subsequently treated with lead. The following three cases are examples of the type in which the operation was incomplete, and which were subsequently treated with lead, with a satisfactory result.

CASE 9C.—A woman, aged 31 years, with malignant disease of the rectum. The rectum was excised, and the sigmoid brought down to the anal orifice, but a large mass of growth was left in the pelvis. Section showed it to be a typical columnar-celled carcinoma. Subsequently she was given 0·265 g. of lead. She is now very well and has gained weight, and there is no evidence of malignant disease.

CASE 24C.—The patient was a woman aged 39 years. She had a large ulcer high up on the posterior wall of the stomach behind the pancreas, causing hour-glass contraction. Partial gastrectomy was done and gastro-enterostomy, but there was much infiltrated tissue left behind. Section showed it to be a typical spheroidal-celled cancer. She was given 0·385 g. of lead. This patient has done well; she has gained weight and her appetite is good. There is no sign of malignant disease.

CASE 51.—The patient was a woman, aged 44 years, who two and a half years previously had had a radical operation on the left breast for carcinoma. On admission the abdomen was very distended and a mass could be felt in the pelvis. At the operation malignant ovarian tumours on both sides were removed. There were malignant nodules in the neighbourhood of the cæcum and in the omentum, which were not removed. She was subsequently given 0·765 g. of lead. This was over two years ago; she is still quite well and has gained considerable weight. There is no sign of recurrence.

Of those treated with lead and X ray—

CASE 140 is a good example. The patient was a man, aged 34 years, with a large sarcoma of the scapula and a mass of glands in the axilla, one of which was removed for section and found to be a mixed-celled sarcoma. He was given 0·22 g. of lead and several X ray exposures to the scapula only. In three months the scapula was normal. Altogether he has had 0·24 g. of lead, the last injection being given over 18 months ago. He is quite well, and there is no abnormality whatever of the scapula. His general health is good and he is able to follow his employment.

The following are examples of cases treated with injections of colloidal lead only.

CASE 117.—A woman, aged 57 years, who 15 months previously had had a radical operation for a carcinoma of the right breast. Fourteen months later the supraclavicular glands were removed. She was sent to us on account of a mass above the clavicle and in the axilla. She was given 0·19 g. of lead. The lumps have disappeared. The last injection was given over two years ago and she is still well and there is no recurrence.

CASE 81.—This patient was a young woman, aged 27 years, who in November, 1922, was operated upon for intestinal obstruction. A growth in the small intestine was found, and a lateral anastomosis was performed, no attempt being made to remove the tumour. A section of the growth showed it to be a lympho-sarcoma. She received 0·14 g. of lead. Her general condition is very good and there is nothing abnormal in the abdomen.

CASE 110.—This patient was a woman, aged 50 years, with ascites and small nodules of adenocarcinoma in the liver and omentum. No primary growth was found. She had to be tapped each fortnight and an average of 15 pints of fluid was withdrawn on each occasion. Subsequently she received 0·315 g. of lead. For the last 20 months the patient has been and looks very well. There is no sign of recurrence or of free fluid in the abdomen, and she is able to do her own housework.

CASE 50R.—This patient was a married woman, 55 years of age. She complained of irregular vaginal hæmorrhage. On examination she was found to have three nodules of considerable size in the vagina and an enlarged uterus. Hysterectomy was performed and a portion of one of the vaginal nodules was removed for section. The growth in the uterus was found to be a columnar-celled carcinoma and the piece of tissue removed from one of the vaginal nodules also proved to be adenocarcinomatous. She was treated, and in all received 0·52 g. of lead up to November, 1925. The masses in the vagina disappeared and her general health is in every way satisfactory. It is now (February, 1926) 13 months since the treatment was commenced, and a section recently prepared from a piece of hard tissue on the site of one of the pre-existing nodules shows nothing but fibrous tissue.

CASE 1.—This patient was a young woman, 36 years of age, who was sent to us with a large fungating carcinoma of the left breast. It was attached to deeper structures and there was a mass of glands in the axilla. Any operation was considered impracticable, but a portion of the edge of the ulcer was removed for section and proved to be carcinoma. She received 0·32 g. of lead. The ulcer healed in a fortnight and the whole tumour disappeared within six weeks. Subsequently a piece of breast tissue was removed and histological examination showed fibrous tissue only. At present—nearly five years since the treatment ceased—the patient is quite well and on palpation the breast appears to be normal. During this period she has had two babies and has nursed them at this breast. She comes to see us periodically to report herself.

### DISCUSSION OF CASES TREATED AND THE TREATMENT ADOPTED.

Limitations of space do not permit us to do more than comment in a general way on the patients treated. If, in estimating the value of the treatment of malignant disease by lead we exclude, for reasons already given, the cases in Groups 1, 2, 3, 5, and 6, we are left with Groups 4, 7, 8, and 9, from which to draw our conclusions. In allotting to these groups cases suitable to them we have erred on the side of caution. An example of this may be given in order to demonstrate that we have attempted not to over-estimate our results.

CASE 129.—The patient, aged 68, came to us in an emaciated condition, having a few months previously had a gastrostomy performed subsequently to complete occlusion of the œsophagus by cancer. We have not a section of this case, but the Wassermann reaction was negative. He had been operated on by Mr. Thelwall Thomas and also seen by Mr. Somerville Hastings, both of whom had no doubt whatsoever of the nature of his disease, which was also demonstrated by X ray examination. It is well known that few patients have ever lived more than nine months after gastrostomy in these circumstances and even this period is rarely covered. It is now two and a half years since the gastrostomy was performed in 1923, and the patient is in robust health and has put on several stones in weight. This man we should have been perfectly justified in putting either in Group 8 or 9. We have, however, preferred to put him in Group 7, as he has not been as conscientious as he should have been in continuing the treatment, which has now been stopped, having altogether had a little under 0·5 g. of lead.

We find in Group 4 a large number of patients who died of malignant disease in spite of a considerable amount of treatment. In these cases we may be said to have failed; yet the cause of failure may be attributed in many instances to the fact that the patient did not attend regularly for injections.

In many of the earlier cases failure was possibly due to our inexperience, which led us to give the metal in too small doses—a mistake only remedied in the last 18 months. Moreover, undoubtedly by slow poisoning in some of these early cases we reduced the general health of the patient, and rendered her less able to resist the disease. It must, however, be emphasised that in a large number the growth was considerably affected and altered by treatment, but by the time that stage had been reached it was impossible to continue treatment. Cases in Groups 7, 8, and 9 may be regarded as successes, although, as in all cases of supposed cure of cancer, time, and this time the rest of the life of the patient, alone can prove the truth of any statement on this matter. In at least four of our cases recorded as failures in Group 4 the growths disappeared completely, and the patients considered themselves cured. Treatment was stopped, but the condition recurred later.

As one of us has stated on a previous occasion,[3] X rays appear to exert an appreciably greater effect on a superficial tumour after treatment with lead. This is of great importance, as in suitable cases the assistance of X rays, after the patient has had as much lead as she can tolerate, may be a factor of moment in the treatment of the case.

With regard to operation followed by intravenous injections of lead, it has already been stated that, whenever possible, a very large tumour should be reduced in size, as the action of lead appears to be quantitative. When, however, a more or less radical operation, such as may be practised for a breast cancer with comparative ease and safety, is performed, the patient may be saved from a recurrence if injections of lead be given immediately after operation. Our results after vaginal hysterectomy, without the possibility of eradication, give evidence of the value of this procedure.

We recognise that those who commence the treatment of patients with lead will almost certainly be disappointed; for, indeed, they may have a series of failures before they obtain, if ever, a beneficial result. In any case, in spite of the fact that we have seen extraordinary happenings, they must not too confidently be expected. Moreover, we have never attempted to exclude operative and X ray treatment where these could be of assistance, and in every case we have only had in view the ultimate cure of a patient who generally had been abandoned to her fate.

It will be seen, therefore, that although we believe that lead is of great value in the treatment of malignant disease, either alone or in conjunction with other methods of treatment, we realise not only that it is but a substitute for something better, but also that the preparation made is far from perfect.

For all these reasons we would have preferred to work quietly on and to have kept the matter in our own hands until we felt reasonably certain that we could no further improve the method, and that the personal factor in regard to treatment was less important than it is to-day. We have no doubt whatever that, if lead were to come into the hands of all those who are clamouring for our preparation, the whole method would be condemned as useless.

## Comment by Dr. J. G. Adami.

I have followed with the deepest interest the developments in Prof. Blair Bell's method of treatment ever since he communicated to me its nature and showed me his first remarkable case of disappearance of an extensive and ulcerating carcinoma of the left breast. That was in the winter of 1920–21. The secondaries in the axilla had then disappeared: there was still a small area of induration to be felt in the outer part of the breast and the site of the old healed area of ulceration was still recognisable. Since then he has kept me fully advised as to each successive step. I have repeatedly seen his cases in the course of treatment, and I have been freely informed regarding the failures as well as the apparent successes, being a member of his first advisory committee and then becoming a member of the Executive of the Liverpool Cancer Research Committee established in February, 1923. The personnel of that Committee and of the large coöperative research Clinical Staff is given in Prof. Blair Bell's article in THE LANCET of Feb. 9th, 1924, p. 267.

On the mornings of July 15th, 16th, and 17th, 1925, as a medical member of that Executive I attended, with others, a review or survey of a number of old patients who had from the beginning been subjected to Prof. Blair Bell's treatment. Of these I saw and took notes of 30. Letters were read from 10 others all declaring themselves in good health, who for one cause or another could not respond to the call.

The main impressions left upon me by this very remarkable series of cases are the following.

1. The healthy, and indeed almost florid, appearance of the majority of the patients. There was complete absence of cachexia, absence also of any evidence of plumbic anæmia.

2. Absence of wrist-drop or other sign of lead poisoning; only one patient complained of some dimness of vision.

3. The rise in weight and good bodily condition of the majority, and, with this, their repeated testimony to the fact that they were now actively at work at their usual avocations.

4. The absence of evidence of recurrence. I had expected after this treatment, just as after X rays and radium, to be confronted with a fair proportion of recurrences within a year. There was not a single example in this group. The problem evidently resolves itself into this: What is the dose of lead which will surely kill off all the cancer cells without inflicting too grave an injury upon the other tissues of the body?

5. I could not but wonder whether it had been given to any other physician or surgeon to pass in review in three days 30 cases of recurrent and inoperable malignant growth, and to find one and all so actively going about their work in such apparently excellent health, with such absence of evidence of progressive disease. And this, even though there had been a mortality (in the main of those presenting themselves for treatment with the condition too far advanced) of more than 60 per cent. But then 60 per cent. or even 70 per cent. is a material reduction upon, say, 95 per cent.

I could not but be impressed with the fact that here we were dealing with an important step forward in the direction of ultimate control of what is one of the gravest ills which inflict mankind.

## Conclusions.

1. The results of treatment of malignant growths with preparations of lead add further testimony in support of our views of the nature of malignant neoplasia. These views have received confirmation, as shown in the previous papers, in all the directions that have been explored.

2. Much work remains to be done in regard to discovery of a more therapeutically active preparation of lead, which is at the same time less toxic generally.

3. All types of malignant growths are probably amenable to the beneficial influence of lead, provided the metal can reach the malignant cells in sufficient quantity.

4. Adjuvant surgical and radiological measures in suitable circumstances may be employed with considerable advantage. When the growth has been partly, or apparently entirely, removed, intravenous injections of lead should be employed within a few days of the operation when possible.

5. The method of treatment is difficult, and to some extent dangerous, and can only be safely employed by those who are thoroughly experienced in the work, and have laboratory facilities at their disposal.

We cannot conclude this series of contributions without expressing the deep sense of gratitude with which the whole staff, both clinical and experimental, of the Liverpool Cancer Research Committee, regard the interest and generosity of the following gentlemen who have not only made themselves responsible for the conduct of the work, but have also extended to us the sympathy which is so necessary in dealing with problems as difficult as that of cancer: Dr. J. G. Adami, Mr. Rex D. Cohen (treasurer), Mr. A. B. Earle, Sir Robert Jones, Mr. C. Sydney Jones, Mr. F. C. Minoprio, Mr. F. T. Paul, Sir James Reynolds, Colonel J. J. Shute, Mr. J. A. Smith (chairman), Mr. W. C. Stapleton, and Mr. R. Wilson. We wish also to thank Mr. E. Carey, the secretary, Miss Barnes and Miss Denby, assistant secretaries to the Cancer Research Committee, and the laboratory assistants, especially Mr. Manby and Mr. Sephton, for their ungrudging assistance.

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# SOME RECENT WORK ON THE FUNCTIONS OF THE SPLEEN.

*A Lecture given to the Leeds University Medical Society on March 9th, 1926,*

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ABOUT 15 months ago, in an address delivered in Manchester on Some Aspects of the Activity of the Spleen,[1] I put forward in a preliminary way a view of the splenic function which was at once old and new. New because it did not figure at all in the then current literature and thought, old because it can be stated in words published by Henry Gray in 1854.[2] These words are as follows:—

> "The function of the spleen is to regulate the quantity and the quality of the blood . . . the most satisfactory proof that we can possess is that the spleen really does contain, under certain circumstances, a varying amount of blood and that that amount is to such an extent as to justify us in concluding that the organ serves to regulate its quantity."

Probably I shall be expected to take up the story where I then dropped it and to state shortly what 15 months of work have added to the knowledge which we had at the commencement of 1925.

### *Comparative Size of the Spleen under Varying Conditions and After Death.*

The point of interest at that time was to arrive at some sort of judgment as to whether the spleen as it existed in the intact and normal animal was comparable in size to that seen in the same animal post mortem. The reason for this inquiry was as follows. There seemed good ground for the supposition that the spleen contracted, expelling red corpuscles from the spleen pulp into the general circulation under conditions of bodily stress, but the spleen seemed to be so small as to make this phenomenon one which was so trivial as to be of little importance. It seemed to be, if I might so say, rather a "property" than a "function" of the organ. A couple of experiments had sufficed, however, to show that under certain conditions the spleen at death was only about one-third *or one-quarter the size of the spleen during life.* Clearly a number of questions were raised by this observation: (1) How far were the conditions special to the two experiments performed, or how far were they general? (2) Granting that the shrinkage was due to the expulsion of blood constituents into the general circulation, what were these blood constituents? For instance, was the material expelled simply blood? or (3) Was there a preponderance of either corpuscles or plasma? (4) Were the corpuscles normal red blood corpuscles, or were they in any way distinguishable from those in the general circulation?

To these questions let me address myself.

1. The first condition in the experiments quoted, if it may be called a condition, was that they were both made upon cats. Is the phenomenon confined to cats or is it common to the higher animals generally? By the same methods which were used on the cat experiments have been performed on the dog and on the monkey, as well as many more on the cat. That on the dog produced an even more striking result than those on the cat. On the dog, as on the cat, the shrinkage caused both by hæmorrhage and by exercise was studied, with the following results, so far as hæmorrhage is concerned.

*Successive Bleedings.*

(A) = Total quantity of blood lost by dog.
(B) = Total quantity of blood lost by spleen.

| | (1) | (2) | (3) | (4) | (5) | (6) |
|---|---|---|---|---|---|---|
| (A) .. .. | 20 .. | 40 .. | 68 .. | 133 .. | 200 .. | 230 c.cm. |
| (B) .. .. | 5 .. | 25 .. | 39 .. | 44 .. | 50 .. | 52 c.cm. |

The experiments upon the monkey went in the opposite direction, and the method which we used *showed only a trifling change in the size of the spleen.* These experiments also revealed a weakness in the experimental method. The spleen of the monkey is—or perhaps I should say the spleens of our two monkeys were—roughly, quadrilateral pyramids, each face of which was an equilateral triangle. We put metal clips at three of the four angles, the fourth being the hilus, and proceeded to take X ray photos of the spleen when the animal had recovered from the operation. We then judged the size of the spleen from the position of the clips. Now it is clear that the spleen might expand in such a way as to turn the tetrahedron into a sphere without changing the positions of the clips. Such a change would increase the volume of the spleen about eight-fold.

These considerations indicate a weakness in the method which we employed. Partly on that account and partly because of the desire actually to see and not merely to deduce the effects which one describes, it seemed desirable to supplement the radiographic method of mensuration with a technique by which the spleen actually became visible. Mr. J. G. Stephens and I therefore have carried out a series of experiments in which the spleen was observed through a celluloid window. The first occasion on which we made any observations was on a cat in whose side a window had been placed by Dr. Florey and Mr. Stephens for another purpose. After a few preliminary experiments we decided so to perform the operation that the spleen was withdrawn from the abdomen. We therefore cut away as much of the skin and superior oblique muscle as was necessary for the window and made a slit in the inferior oblique and the parts of the body wall underneath it. Then we drew the spleen through the slit, sewed the cut edges of the inferior oblique loosely together underneath the spleen, so that the organ could not get back into the abdomen, and then put in the window. The wound healed up, enclosing the abdomen. Such an animal might probably be kept alive indefinitely, but we have not allowed any to live more than a fortnight. The spleen soon became obscure owing to the formation of a fibrous covering over it. In the latest experiments we have made a window which will open and allow of the spleen being cleaned.

*With such a preparation it is easy not only to* delineate the boundaries of the spleen, but to judge of the degree to which it is inflated, and in this latter respect it has yielded instructive results. The spleen of the dead cat is an organ the surfaces of which are, broadly speaking, flat, but in detail rough, and the edges of which are notched. The surfaces of the spleen in the resting live cat is quite different in appearance. The organ resembles a somewhat compressed sausage, being more or less elliptical instead of triangular in section. The surface is quite smooth.

These experiments gave confirmation to the series which we carried out by the X ray technique on the contraction of the spleen during exercise and hæmorrhage and death.

Fig. 1 shows the relative size of the resting spleen with that of the same organ after the cat had taken a trifling amount of exercise in a treadmill. The spleen apparently shrank to about two-thirds its superficial area, which would mean about one-half its volume. Moreover, the even sausage-shape contour is replaced by a much more angular one.

Fig. 2 shows a comparison between the living and the dead spleen. The white portion represents a piece of paper whose area is that of the spleen as marked off on the celluloid window when the cat was at rest; after death (by bleeding) the actual spleen was taken out and photographed on the white paper. In this case the volume of the dead spleen is about one-third that of the living organ when the animal was at rest.

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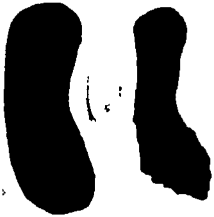
[1] THE LANCET, 1925, i, 319.

[2] [illegible] n. By H. Gray, F.R.S. London. 1854. Pp. 341.

### *Study of the Blood which leaves the Spleen.*

2. In order to acquire a knowledge of the nature of the material which leaves the spleen researchers have for many years studied the composition of the blood in the splenic vein. They have obtained variable and, for the most part, negative results, finding little or no difference between the blood in the splenic vein and that in the general circulation. Looking back on such researches in the light of present knowledge they appear to be little short of tragic. Almost as well might one judge of the native Egyptian, or better, the temporary resident in Cairo, by making a careful study of the passenger on the mail steamers leaving the Suez Canal. These passengers come from almost everywhere but Egypt. Since an animal can breathe carbon monoxide for two hours without any of that gas appearing in the hæmoglobin of the spleen pulp, it follows that the blood which emerges from the splenic vein during all that time is short-circuited in some way and that it comes through a by-pass of some kind.

FIG. 1.

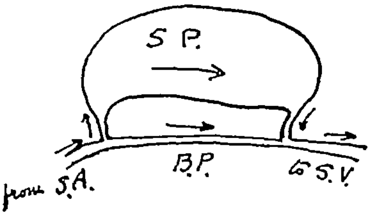


Rest. Exercise.

The physiological facts could be explained if the blood could choose alternative routes through the spleen, such as indicated by the following scheme. Precisely how such a representation, which is purely a sort of shorthand intended to represent the functional possibilities of travel, fits in with the anatomical details I am not prepared to discuss.

To obtain the blood from the spleen pulp in as pure a state as possible it is necessary to clamp the splenic artery (S.A.), then to stimulate the splenic nerve which will cause the blood to be expelled from the spleen pulp (S.P.) along the splenic vein (S.V.). When the splenic nerve is stimulated its action is found to be a very slow one, some eight minutes being necessary in the cat for the expulsion of as much material as will come. It does not come, however, at a uniform rate. In all as much as 13 c.cm. of material have been expelled from a spleen which at the end weighed about 6 g.

FIG. 3.

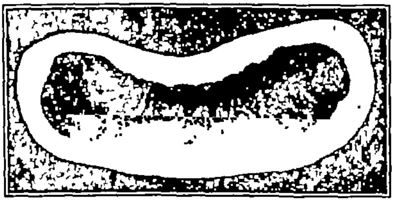


S.A. = splenic artery; S.V. = splenic vein; B.P. = by-pass; S.P. = spleen pulp. (The above is purely schematic and makes no assumption about the nature of the wall which encloses the spleen pulp.)

### *Increased Erythrocyte Count and Hæmoglobin Value of Blood Leaving Spleen.*

3. When the material emerging from the spleen pulp under such conditions is examined it clearly differs very much from the blood of the general circulation. The most apparent difference is to be found *in the relative number of erythrocytes found as* compared with that in the general circulation. If the spleen blood be collected[3] in successive samples, each of 1 c.cm., and these examined separately, it is found that the corpuscle count varies from cubic centimetre to cubic centimetre and reaching a maximum in the second or third cubic centimetre expelled. The same is true of the hæmoglobin value, which has been studied more particularly. At its maximum the hæmoglobin value would appear to be about 140 per cent. of that in the general circulation and on the average about 115 per cent. It will be seen that 13·6 c.cm. of material squeezed from the spleen pulp would correspond to approximately 15·6 c.cm. of blood.

FIG. 2.

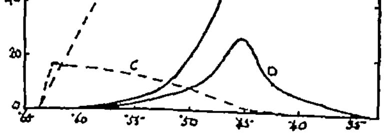


Shows a comparison between the living and dead spleen of a cat.

### *Increased Fragility of Corpuscles in Blood leaving Spleen.*

4. We now pass to the question, Are the corpuscles in the material expelled from the spleen pulp the same as those in the general circulation. Histological examination does not reveal any difference. No immature forms have been observed. Fragility tests, however, carried out by Orahovats[4] revealed some intensely interesting facts.

FIG. 4.



A = Per cent. corpuscles from spleen pulp laked } Against strength of salt solution
B = " " general circulation }

C = " " spleen pulp } Against increments of 0·05 per cent. salt solution.
D = " " general circulation }

Fig. 4, curves A and B respectively, show the fragility of the blood from the spleen pulp and the general circulation in a certain experiment. I should like to make it clear that this was the one which gave the most marked difference. Six consecutive experiments, however, all gave the same type of result. On the average the difference was about two-thirds that shown in the experiment here quoted, and it was about one-quarter to one-third that of the above in the experiment which gave the least conspicuous difference. In all cases, therefore, the difference was quite well marked. We were led to go into the question of fragility by a perusal of the work of Pearce, Krumbhaar, and Frazier on the spleen. Orahovats confirmed their principal results upon the effect of splenectomy on fragility. We would commend to the reader Dr. Krumbhaar's paper in the current number of *Physiological Reviews*.

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[3] Cruickshank. Communicated to Physiological Society, December, 1925. See forthcoming number of Journal of Physiology.

[4] Communicated to Physiological Society, December, 1925. See forthcoming number of Journal of Physiology.

It had already been shown that not all the corpuscles in ordinary blood are of the same degree of fragility when exposed to hypotonic salt solutions. Brinkman[5] has classified them into three categories, which I shall call Class I., Class II., and Class III. The majority, Class II., the fragility of which differs but slightly from the fragility of the average and two smaller classes, I. and III., each of which contains a relatively small proportion of the corpuscles, but which covers a considerable range of fragility, I. being less fragile and III. more fragile than the average. Fig. 4, curve B, shows the percentage of corpuscles taken plotted against the strength of the salt solution and a glance at it will show the corpuscles of which Bruckmann's three classes are composed. On the particular blood shown Class I. would correspond approximately to corpuscles unlaked by 0·42 per cent. salt solution and would be about 10 per cent. of the whole, Class III. to corpuscles laked by salt solutions of greater strength than 0·52 per cent., and would also correspond to about 10 per cent. The remaining 80 per cent. would be in Class II.

It does not seem that Brinkman's classification amounts to more than that the fragility of the corpuscles has the sort of dispersion relative to the tonicity of the salt solution required to produce laking that most similar phenomena possess (see curve D); nevertheless, as Brinkman's classification is convenient we will retain it. The result of Orahovat's sex experiments in Brinkmann's language was as follows. The corpuscles in Class I. were uniformly more fragile in blood from the spleen pulp than from the general circulation. Similarly the corpuscles in Class B from the spleen pulp were uniformly more fragile than the same class in the circulating blood, whilst Class C did not exist in the blood from the spleen pulp. The impression given is that there is a limiting degree of fragility which cannot be exceeded, from whichever source the blood comes, but that whereas the corpuscles from the spleen pulp are very near that limit the majority of those from the general circulation enjoy a considerable margin of safety.

If instead of using hypotonic salt solution as a hæmolytic agent we have recourse to saponin we find that the corpuscles from the spleen pulp lake less easily than those from the general circulation. The phenomenon of corpuscles, which are abnormally fragile to hypotonic solutions and abnormally strong—if that is the opposite of fragile—to saponin, is no new one. It has been the subject of investigation by Rywosch,[6] who attributes it to insufficiency of phosphorous within the corpuscles. Here, then, appears to be a definite phenomenon, not only is the fluid in the spleen pulp somewhat richer in corpuscles than that in the general circulation, but the corpuscles are, on the whole, different, and this difference appears to be associated with a definite chemical deficiency.

It is too early to make any statement as to the physiological importance of the difference—i.e., as whether it is of advantage to the body that corpuscles of a certain character should be stored outside the general circulation and retained there in reserve. Corpuscles with these particular properties are reputed to be the oldest, but the demonstration does not appear to be convincing, and we are inquiring further as to whether it is the fact.

### *Explanations of Increased Fragility.*

Some observations may, however, be made on the mechanism by which the spleen acquires this accession of corpuscles of Class III. At first sight two obvious explanations present themselves: (1) The first is that the fragility (to hypotonic solutions and the word will be used in this sense in the remainder of the lecture) of the corpuscles is increased during their residence in the spleen pulp. (2) The second is that the corpuscles which on the whole are the most fragile are caught in the spleen pulp, which would therefore act as a sort of differential filter.

The first of these views seems, in the form in which it is stated, to run counter to the testimony both of theory and experiment. From the theoretical standpoint one may transcribe the curve given in Fig. 4, B, into the form shown in Fig. 4, D, plotting the percentage of corpuscles laked between consecutive concentrations of 0·05 per cent. salt solution against the actual concentrations. If a uniform reduction in the fragility of each corpuscle took place, by some reagent in the pulp acting upon all, a mere shifting of the curve would take place; and even if one supposed that the reagent acted unequally but in a regular manner, one would get a shifting coupled with a stretching or a general contraction, but neither of these is a true picture of what occurs.

The actual alteration is from Fig. 4, D, to C. This is more nearly what might occur if coupled with the progressive diminution in fragility; all corpuscles more fragile than those laked in 0·64 per cent. salt solution cease to exist. The figure is not unlike one which might be obtained if curve D were stretched out laterally and then the more fragile half of the curve cut off. Such a curve would mean a very large destruction of corpuscles, for if the spleen pulp contained 10 c.cm. of corpuscles the inference would be that 10 c.cm. or something of that order would be destroyed. While therefore this theory is attractive at first, it seems to make too great a demand on the corpuscles.

Let us pass to the second alternative, that the spleen is a filter. Such a curve as C would not be developed from D by the mere process of filtering off all corpuscles of more than a certain degree of fragility, but such a curve as C could be reproduced if one assumed that the prospect of a corpuscle being filtered off increased very rapidly with its fragility. Of course, it is not suggested that mere fragility would make the corpuscles more retentive by the spleen pulp; it is possible that fragility might go hand in hand with some other property, such as want of lability, or stickiness, which would have that effect.

On the experimental side Orahovats made an effort to decide between the rival claims of "increased fragility and bursting" and "differential filtration" along the following lines. It might be supposed that if the corpuscles were rendered more fragile and finally destroyed in the spleen pulp, that the process would extend over some time, and that the longer the corpuscles had resided in the spleen pulp the greater would be their fragility. On the other hand, if the process was one of mere filtration the corpuscles in the spleen pulp would differ as greatly from those in the general circulation at the moment of their arrival as after a long interval of time. Orahovats could not find that the time during which the corpuscles were held in the spleen pulp made any difference to their fragility. The spleen, if emptied by stimulation of the splenic nerve, takes several minutes to dilate and engorge itself once more, but at the end of this time the corpuscles within it are as fragile as they are after some hours' residence there, the spleen having been immobilised by section of the nerve. If, therefore, the corpuscles are reduced in fragility to the point of disintegration by some reagent in the spleen the effect must be completed very rapidly.

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[5] Brinkman: Arch. Neerland. d. Phys., 1921, vi.

[6] Rywosch: Pflüger's Archiv, 1907, cxvi., 229.

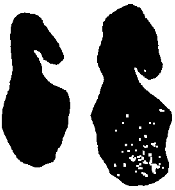
### *Mechanism of Dilatation of the Spleen.*

The work which has been discussed so far has centred largely about the contraction of the spleen. The subject of dilatation has only just commenced to engage our attention. The mechanism by which extensive dilatation is brought about is rather obscure. It is worth remembering that the spleen with its sinuses appears to be particularly susceptible of distension by the pressure of blood within it. Working against this pressure there are (1) resilience of elastic fibres in the spleen, and (2) the tone of the muscle

Clearly, in dilatation of the spleen there is, or may be, a nervous factor, and one may inquire from this point of view whether the musculature of the spleen possesses any properties different from those of the musculature of the splenic artery, or whether it may be regarded simply as an expansion of the tunica media of that vessel. One may inquire whether the spleen participates in the same reflexes on the arteries in the viscera. The older works on the subject describe the spleen as contracting on stimulation of the central end of the vagus. Accepting this statement, it seemed desirable to dissect out the bundle which contains the depressor fibres in the cat and stimulate it. If the result was constriction of the spleen it would be clear that the splenic musculature reacted differently from that of the visceral arterioles Dr. Masuda, who undertook this work, found quite the opposite result—namely, that the spleen dilated on stimulation of the depressor trunk of the cat vagus. Whilst the depressor dilatation of the spleen failed to bring out anything specific about its neuro muscular mechanism as compared with that of the vessels, it raised some very interesting points Of these the first for consideration is the appearance of the spleen in a mechanism which seems to be connected with the hydrostatic properties of the blood rather than with its function as an oxygen carrier. The function of the depressor presumably is to relieve the heart. It is wholly reasonable that the spleen should assist in that function by dilating, but the discovery that it does so shows that the nervous influences which govern its contraction are not confined to those which are initiated by want of oxygen in the central nervous system. The precise effect of stimulation of the depressor on the blood flow through the spinal cord is not known, but on general grounds one expects some degree of anoxæmia as a result of the fall in arterial pressure Yet the spleen, so far from contracting as it does in other instances of anoxæmia in the C.N.S., dilates.

It is possible to confront the body with circumstances calculated simultaneously to reduce the oxygen supply to the central nervous system and increase the burden thrown upon the heart. Such is the injection of a large quantity of normal saline. Will the response be constriction caused by the anæmia of the central nervous system or dilatation occasioned by the accession of a considerable volume of fluid to the circulation and the consequent burden upon the heart? The answer to this question is given in Fig. 5. Areas were obtained by Mr Stephens and myself by the celluloid window technique; frequent small injections of saline were made, 140 c.cm. being injected over an hour. The figure shows the area of the spleen as projected on the window, and it is only necessary to add that in addition to the evident increase in the surface of window occupied by the spleen, the organ presented a very tense appearance. There is no doubt that its volume was at least doubled.

FIG 5.



Before After
injection of saline

The experiment which I have just described is one of great interest also because it links the observations which have been made within the last two years with the dilatation of the spleen associated with anæmia; about that we are not yet in a position to speak. It must be reserved for some future occasion.

# Clinical and Laboratory Notes.

## NOTE ON THE
## TOXICITY OF CARBON TETRACHLORIDE
### *IN THE TREATMENT OF ANKYLOSTOMIASIS.*

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*(From the Parasitology Section, Public Health Laboratories, Cairo.)*

Carbon tetrachloride has been used on a large scale during the last three years as an anthelmintic in ankylostomiasis. The drug was generally considered as non-toxic, but some observers recorded toxic symptoms developing after its use in a very low percentage of the cases treated. The toxic symptoms varied in severity from transient attacks of dizziness, headache, and nausea to severe symptoms, such as vomiting, convulsions, and even death. Lambert,[1] in a series of 50,000 cases treated in Fiji, recorded three deaths, which he ascribed to impurities in the carbon tetrachloride used. Two other fatal cases were reported by Phelps and Hu.[2]

In Egypt carbon tetrachloride has been used on a large scale since 1923. The drug was supplied by a well-known British firm. In order to avoid any accidents, samples from every consignment of the drug were given to experimental animals in fairly big doses to detect any poisonous effect. The drug was also subjected to chemical analysis. The first consignment proved satisfactory. 20 c cm. given to a three-kilo monkey by a stomach-tube produced no ill-effects besides a transient diarrhœa. A ten-kilo dog was given as much as 100 c.cm. without developing any serious symptoms. The animal was perfectly normal in three days' time. This consignment of the drug was used in the Government anthelmintic hospitals with gratifying results. A second consignment of the drug from the same firm was tried on animals in the same way. 20 c.cm. were administered to a three-kilo monkey on Dec. 27th, 1923. The animal vomited once after two hours and abstained from taking food. It had no diarrhœa and died the following day. Post-mortem examination revealed the following morbid changes. Petechial hæmorrhage in the stomach wall, the terminal 15 cm. of the ileum were full of blood-stained slimy mucus; the intestinal wall was severely congested, and the contents contained carbon tetrachloride unmixed with the gut contents, other organs were practically normal. Another monkey was given 10 c.cm. of the same sample. It suffered from vomiting and diarrhœa, abstained from taking food, but ultimately recovered.

In view of these results the samples were chemically examined but no foreign ingredients were detected. Two litres of the drug were distilled and the residue of 5 c.cm. were given to a monkey by a stomach-tube, but no untoward symptoms developed. The first portion distilling over had a peculiar smell other than that of carbon tetrachloride and suggesting the presence of carbon bisulphide. 3.5 c cm of this were given to a monkey which died within 24 hours. The post-mortem revealed the presence of petechial hæmorrhages in the stomach wall. The last portion of the ileum was severely congested with blood-stained contents. No free carbon tetrachloride was found. Carbon tetrachloride distilling over after a first portion of 10 c.cm. was given to experimental animals, monkeys and dogs, but no bad symptoms appeared.

The question was consequently referred to Dr. H. H. Dale[3] and the British Medical Research Council. Dr. Dale communicated with the suppliers, who undertook to fractionate a large volume of the carbon tetrachloride, commercially known as "pure," and submitted the earliest distilling portion for examination by Dr. Harold King. Dr. King found that the small amount of sulphur present in the original sample was accumulated in this fraction, thus confirming the original observations made in Egypt. He, however, reported that it was all in the form of carbon bisulphide. The suppliers were advised to purify the drug from any traces of sulphur compounds.

Subsequent experiments in Egypt tended to show that the toxicity could not be ascribed to $CS_2$. Carbon bisulphide in varying amounts from 1–5 c.cm. were added to one dose of pure carbon tetrachloride and administered to experimental animals, including monkeys, without any ill-effects. On the other hand, the first fraction of a distillate of sulphur-free carbon tetrachloride proved non-toxic. It is therefore probable that the toxicity of ordinary so-called pure carbon tetrachloride is due to sulphur compounds other than carbon bisulphide, although the presence of the latter may be taken as an indication of the unsuitability of the drug for the treatment of ankylostomiasis. The actual toxic compounds remain to be identified.

Sulphur-free carbon tetrachloride can be used safely in doses of 5 c.cm. for the adult. This dose was found to be the most efficacious in expelling *Ankylostoma duodenale* in Egypt. During 1924 no less than 80,000 patients were treated by that drug at the Government anthelmintic hospitals without any fatalities. During the first nine months of 1925 no less than 56,392 patients were treated with only one fatal case. The patient was an old man of 60 years of age, addicted to the use of opium and alcohol. He suffered from collapse three hours after administration of 5 c.cm. of carbon tetrachloride and died within 24 hours. The post-mortem revealed hæmorrhagic embolic foci in the liver and heart.

### *Conclusions.*

(1) Some samples of so-called pure carbon tetrachloride are toxic to experimental animals and probably to man. (2) The toxic impurities are probably sulphur compounds distilling at a lower temperature than carbon tetrachloride (less than 76° C.). (3) The toxicity increases on keeping. (4) The toxic impurities can be got rid of by fractionating the carbon tetrachloride and throwing away the first portion of the distillate (about 1 per cent. of the total quantity). (5) The most effective dose in *Ankylostoma duodenale* infection is 5 c.cm., and this is perfectly safe if the purified drug is used.

The chemical work recorded in this paper was done by Mr. E. Griffiths-Jones, chief chemist of the Public Health Laboratories, to whom I am greatly indebted.

*References.*—1. Lambert, S. M., Carbon Tetrachloride in the Treatment of Hookworm Disease: Observation in 50,000 Cases, Jour. Amer. Med. Assoc., 1923, lxxix., 526–538. 2. Phelps and Hu: Carbon Tetrachloride Poisoning, Ibid., 1924, lxxxii., 1254. 3. Dale, H. H.: The Purity of Carbon Tetrachloride: Brit. Med. Jour., 1924, ii., 160.

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# NOTE ON THE OPERATIVE TREATMENT OF CARBUNCLE.

By Arthur Edmunds, C.B.,
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Apart from scraping out with a sharp spoon, an instrument which I like to use as little as possible, the operative treatment of carbuncle resolves itself into making crucial or other incisions into it, or complete excision of the whole affected area. The following method has, I think, some advantages. In Fig. 1 the suggested incision is shown—namely, a crucial incision marking out four flaps which are dissected up as in Fig. 2. At the same time any necrotic area of the skin is cut away so that the flaps become rather ragged. Having reflected the flaps the whole of the suppurating area is cut away with the knife, and the resulting cavity packed with cyanide gauze wrung out in 1 in 40 carbolic, the flaps being turned outwards (Fig. 3). In this way the whole area is opened up to the maximum extent, but with this advantage, four flaps of skin have been left—a little irregular and ragged perhaps—but capable of being replaced in a few days, leaving the position as shown in Fig. 4. The saving of this skin in no way hinders the drainage, while it accelerates healing very much and diminishes the size of the ultimate scar. It might be expected that these flaps would slough, but as a matter of fact they very rarely do.

*Treatment of Carbuncle: Stages in the Operation.*

Fig. 1.

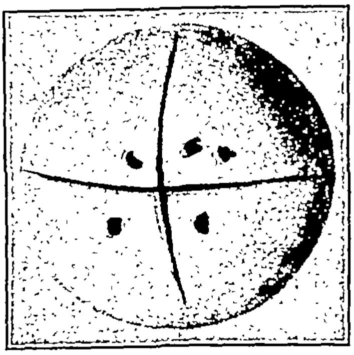


Fig. 2.

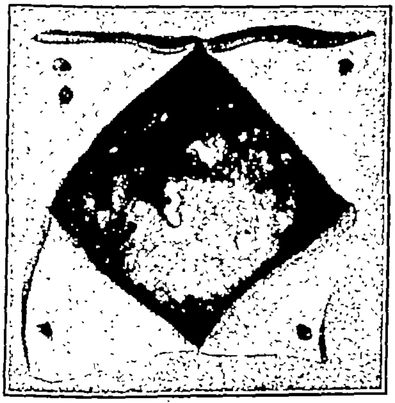


Fig. 3.

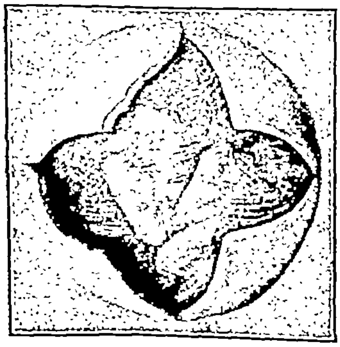
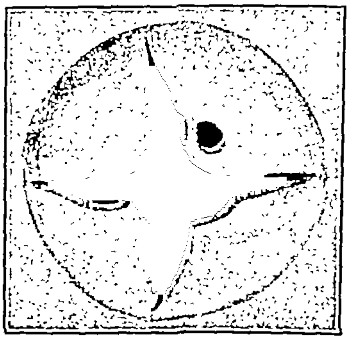


Fig. 4.



# Medical Societies.

## MEDICAL SOCIETY OF LONDON.

AT a meeting of this Society on March 8th, Sir HOLBURT WARING, the President, in the chair, a discussion on

### OBSCURE PYREXIA IN ADULTS

was opened by Sir THOMAS HORDER. Departing from the usual methods pursued in arriving at a diagnosis in an obscure case, he set out to construct a series of inquiries to be elaborated under their several headings.

1. The first thought in the mind of the examiner approaching such a case was to enumerate the general causes of a state of pyrexia in a patient who showed few or no physical signs or symptoms. So frequently was pyrexia of microbial origin that some said, when it occurred in the absence of certain experimental drugs, it was always microbial. These would not admit a nervous origin of pyrexia, and acute gout they would probably attribute to microbic toxæmia, perhaps also severe hæmorrhage. There were also other examples of pyrexia which were difficult of explanation on a microbic basis, such as that in active Graves's disease, or that following severe exercise, or that occurring on the ninth or tenth day after the injection of horse serum. At times metabolic defects led to pyrexia quite apart from microbial activity; so in like manner did the injection into the body of foreign proteins. Acute arthritic gout could be accompanied by a pyrexia closely resembling that of septic arthritis. The fever of severe hæmorrhage was important and raised the question whether it was the natural result of a loss of blood, or was the result of an infection to which the loss of blood might have been due. Somewhat akin to this kind was the fever occurring after a period of hæmolysis in Addisonian anæmia. Here the pyrexia might be the direct result of the hæmolysis; it might be an expression of the unknown cause of the disease, presumably microbic, or possibly due to a secondary pyogenic infection. Cases of nervous pyrexia were not satisfactorily dismissed by saying that the pyrexia was always due to some microbial poison in the presence of an unstable thermo-taxic mechanism. If these people were not more poisoned than the generality, the important matter was the neuropathic patient, not the poison, and treatment should be directed to the neurosis and not to a toxæmia. Instability of the thermo taxic mechanism was also caused by alcohol and by the morphia habit, and an unusually high temperature for which an ordinary explanation could not be found should cause one to think of those drugs. A similar instability of this mechanism was caused by pregnancy and the parturient state, and a long febrile illness left the patient in such a susceptible condition that small and trivial causes would cause the temperature to mount. It would cause the belief among Anglo-Indians returning to this country after having malaria that they had a return of the disease. It was important to take cognisance of the patient's state of health just prior to the onset of the fever Sometimes the presence of an epidemic in the neighbourhood was a great help in assigning a cause for the temperature, but a suggestion that the case might be one of typhoid or of influenza would perhaps be countered by the doctor with the statement that there was no epidemic of those diseases, and yet the case might be an atypical one of such a disease, and the patient might have acquired it at some other place and developed the symptoms at home. Chronic diseases in the patient were occasionally of much diagnostic importance, he referred to such a condition as nephritis, especially if trauma occurred. An interesting group of cases were those in which surgery had taken place in a septic area, more particularly in connexion with a septic, perhaps a gangrenous, appendix Here the main question was whether a septic process was still in operation. The right lower quadrant of the pelvis, the subphrenic area, and just above the diaphragm were danger regions. Mastoid operations also might be followed by pyrexia, and in this connexion three questions should be attempted to be solved (1) Is there still a local septic zone which has not yet sufficiently drained? (2) is it a sinus thrombosis? (3) are the meninges infected?

2 The second consideration was as to whether the cause of the pyrexia was exogenous or endogenous. In most acute pyrexial diseases it was an exogenous infection, but in most subacute and chronic pyrexias the cause was probably endogenous. Sometimes these latter were acute, such as in coliform infection of the urinary tract, in which there might be no focal symptoms or signs for two days. In the past such cases had often been attributed to influenza, but with the present better knowledge of that disease it was hoped the mistake would be less frequent. He believed that the cases of so-called cystitis complicating influenza were not influenza at all, but were a coliform infection of the urinary tract. *Staphylococcus aureus* infections might be very acute and yet endogenous, the patient might have long had a trivial infection of that organism, pustular acne, a boil, or a neglected carbuncle.

3 The third consideration concerned investigation as to the portal of entry. In many cases this was the respiratory tract, and after the first entry of the cause there was little about the portal remaining to incriminate it.

4 The fourth consideration, and one more prolific of results, was the avenue of spread of the infection, or the particular tissue or tract involved. This consideration resolved itself into passing in review systematically the various paths by which infecting agents got into the deeper tissues. The aim should be to prevent the mind becoming discursive; each path should be carefully examined, and one should never be afraid of a large number of negative examinations, because one was well repaid by striking a positive fact, which would not otherwise have emerged. Different microbes affected different tissues, therefore examination of the tissue systems seriatim would often reveal a lesion or functional defect which would suggest the nature of the organism concerned

5 With regard to the fifth consideration, there were deep-seated organs in which infective processes were apt to get "bedded in" once the infection had become established Several times he had been led to think the infective agent was staphylococcus—and it proved to be so—by considering such tissue as bone, which was notoriously silent as to signs and symptoms. Attention should be paid to the description of any pain by the patient, it was significant if he did not refer it to a particular spot. In osteomyelitis the pyrexia was of the obscure kind for some weeks. A very important deep organ was the liver; there might be a patch of perihepatitis with an infection of the liver below And in the perinephric tissues the *S aureus* might cause pyrexia without symptoms for days, perhaps weeks, but an earlier diagnosis could be made by remembering that it might have started as a blood infection, and that this would cause an intermitting fever Another "cryptic" region for infection was the subphrenic. And he had been impressed again and again with the latency of pleurisy. Too much importance was usually attached to the pleuritic rub There might be a long course of pleurisy without physical signs, moreover, the pain of that disease might be referred to the top of the shoulder, the front of the chest, the region of the vertebræ, or over the crest of the ileum.

Twice, said Sir Thomas Horder, he had seen aneurysm associated with obscure pyrexia, and he thought it was pleurisy in association with the aneurysm which led to the pyrexia. Other cryptic areas of trouble causing pyrexia were the sinuses of the nose, and the sphenoidal sinus seemed to be the chief culprit in this region. A further consideration concerned the nature of the organism. Probably the tubercle bacillus headed the list of organisms which caused obscure temperature. Strept

had their distinguishing characters; they were liable to occur in bone, perinephric tissues, liver. Also spirochætal infections other than those of syphilis must also be remembered, and an acute fever might be associated with coliform infections.

Still another consideration was the form of the temperature chart; sometimes the help derived from this was so great as to be practically diagnostic. The charts should be studied systematically, and not only four-hourly, but over a long period, for then a character might be revealed which was not evident over the shorter periods. Finally, he referred to clinico-pathological helps in diagnosis. It was useful, he said, to make the clinical investigation of a case as thorough as possible before deciding on the pathological investigation to be pursued. It was not justifiable to have all the latter done, partly for economical reasons from the patient's point of view, but also because they were exhausting to an ill person. And pathological findings could only be properly interpreted in connexion with the clinical side. Diagnoses made in the laboratory were often quite brilliant, but also sometimes to be regretted. Sometimes, in these circumstances, a case was diagnosed as lymphatic leukæmia when it was really a mononucleosis. Clinical facts must always be regarded as positive data.

### *Discussion.*

Dr. C. E. LAKIN said that most of the cases of the kind under discussion were either instances of a common disease occurring in a disguised form, or were examples of rare or unusual diseases. His contribution consisted of relating cases in which the causation of the fever caused a good deal of difficulty. One was that of a middle-aged man who, when seen, had been ill four weeks. As it was thought to be typhoid a Widal reaction was done, but on this and other occasions it was negative. The man was indifferent to his surroundings, almost stuporose, and a surgeon suggested he had a frontal abscess. The temperature chart suggested typhoid. As the spleen was palpable a further Widal was done, but again with a negative result. In ten days the patient died, and the post-mortem revealed typical typhoid ulcers; the organisms were obtained from these ulcers and from the gall-bladder. A case of supposed apical pneumonia went from bad to worse and was of a puzzling nature, and post-mortem examination revealed extensive carcinoma of the bronchus on the right side. He narrated other interesting cases, and said he believed a number of cases of obscure pyrexia in the absence of symptoms were due to a small dose of infecting organisms.

Mr. ZACHARY COPE said that a puzzling condition to diagnose was an abscess in the middle of the lung, causing neither pain nor physical signs; he had known such cases diagnosed as neurasthenia. On one patient he was asked to operate for subphrenic abscess, as there was rigidity over one part of the diaphragm, but the leucocyte count was 250,000 per c.mm., and it was found to be a case of spleno-medullary leukæmia. Deep sarcoma could also cause a puzzling pyrexia.

Dr. H. A. DES VŒUX quoted an instance in which fever of several weeks' duration was found to be due to nothing more than a tape-worm; the temperature kept at 103° to 104°F. Syphilis was sometimes the cause of an obscure pyrexia, and also tuberculosis in an aged person.

Dr. HERBERT FRENCH discussed the question of blood agglutinations helping to decide whether a particular organism was the cause of the trouble in a case. Also whether blood culture methods had been so perfected as to make them valuable for diagnosis, and whether cultures from the urine enabled one to say what organisms were responsible for a prolonged pyrexia.

Dr. F. G. CHANDLER emphasised the importance of the leucocyte count in diagnosing these obscure conditions; leucocytosis enabled a differentiation to be at once made between subphrenic or perinephric abscess and tuberculosis or typhoid. He quoted cases

Dr. G. W. GOODHART said he did not think there should be such a thing as a laboratory diagnosis.

Dr. W. J. ADIE stated that prolonged fever might be due to encephalitis lethargica; the attack might be so mild as not to arouse the physician's suspicion; but the later development of the Parkinsonian syndrome confirmed its nature.

Mr. J. E. H. ROBERTS, Mr. E. B. WAGGETT, Dr. LENNOX WAINWRIGHT, Dr. PARKES WEBER, and Mr. H. TILLEY also related cases and the ultimate diagnoses.

The PRESIDENT said it would have been of enormous advantage if such a paper as Sir Thomas Horder's had been written and circulated among members of the R.A.M.C. in the early days of the war, remembering the many cases of "P.U.O." He strongly agreed with the opener's suggestion that in cases of obscure pyrexia the clinician should first make a very thorough examination. Many cases of pyrexia remained obscure as to their nature because the physician had not, in the first place, done his work in a proper way. Pathological investigations should follow the clinical in every case. He also agreed with paying attention to everything the patient had to say. In quite a number of cases the cause of pyrexia remained obscure until exploration was made of the gall-bladder region.

Sir THOMAS HORDER replied.

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# ROYAL SOCIETY OF MEDICINE.

## COMBINED SECTIONS OF SURGERY, MEDICINE, ELECTRO-THERAPEUTICS, AND THERAPEUTICS.

### TREATMENT OF EXOPHTHALMIC GOITRE: IODINE THERAPY.

AT a combined meeting of these Sections held on March 3rd, Dr. GEORGE GRAHAM (Therapeutics) in the chair, Prof. E. MELLANBY reminded members that at the discussion of this subject by the Society in 1921 iodine was not even mentioned. This omission was not due to lack of knowledge that iodine had a profound influence on the disease, but was because many recognised that subjects of the disease could be harmed by iodine. But if the capacity of a therapeutic agent to cause harm was to be regarded as a cause for its rejection, the sooner all practitioners became homœopaths the better. Such valuable drugs as mercury, digitalis, ipecacuanha, &c., could do a great deal of harm. The need was to inquire into the conditions in which iodine could produce in the disease baneful effects. In exophthalmic goitre hyperplasia of the gland occurred, and this could easily be induced in dogs. He showed photographs of the thyroid glands of a litter of five dogs, all brought up on ordinary food. The thyroid glands of three were 44 times the size of the others, and the only difference in the diet was that in the case of the dogs with the large glands a little cod-liver oil was given with the food, and to the others was given the same weight of butter (cod-liver oil containing a small quantity of iodine). The small glands were shown to be full of colloid, while in the large ones a condition of real hyperplasia was found. Iodine, therefore, seemed to exercise a profound influence in regulating the size and structure of that gland. The dogs with hyperplasia of the gland had no symptoms of hyperthyroidism. In the latter condition the use of iodine in a few dogs made the heart beat more slowly, sweating was greatly reduced, and the tremors diminished and then disappeared, the state of the patient being changed from one of restlessness and semi-dementia to placidity and almost normality. He showed charts of the pulse-rate and the improvement brought about by giving iodine; the oxygen intake and the basal metabolism were both greatly reduced under the treatment. In one case a basal metabolism which had varied between + 33 and + 48 was brought down to normal on the eighth day by adding 1 gr. of iodine per day to the food. It was at this stage that operation was most favourable, Unfortunately, after this stage had been reached, the symptoms showed a tendency to reappear, even though the iodine treatment was continued and the food was restricted to 1800 calories per diem. Stoppage of the iodine brought about a real exacerbation of symptoms. However long the iodine was persisted with, there was a return of the unfavourable factors on its cessation. The iodine seemed to keep the intensity of the symptoms in check. In some cases the usual effect just described did not follow the giving of iodine. The first effect might give place to a sudden acute exacerbation of symptoms, the basal metabolism went up, and the patient became much worse Recovery occurred in a few days, and if the treatment were continued thereafter another exacerbation ensued. The cases in which this occurred were those of toxic adenomata, people who had had large thyroids and who then developed hard, knobby glands. Their acini were very distended and swollen owing to the contained colloid. Sometimes the thyroid got so large that it caused respiratory obstruction, rendering operation imperative, and not at a stage which the surgeon would choose for it.

Among the advantages of iodine therapy were that a rapid disappearance of the symptoms was brought about by giving iodine, and this proved a valuable aid to surgery The general condition of the patient was also greatly improved. Some cases completely recovered after this treatment; he had tested some over a period of four years. Many said that if cases of exophthalmic goitre were left alone they would recover spontaneously, and some evidence was available to that effect, while at the last discussion on the subject Sir William Hale-White supported the contention by statistics. The disadvantages were that in some cases, particularly in secondary Graves's disease or toxic adenoma, there were certain definite dangers of a sudden exacerbation of symptoms. This was so pronounced that he did not now give such people—with hard, knobby glands—iodine at all. A further disadvantage was that stoppage of the iodine caused an exacerbation of symptoms. Another was the danger of asphyxia due to the colloid filled gland causing pressure on vital structures. He gave the patients a good diet, but kept the total calories low, as in experimental animals it was found that the greater the quantity of food taken the bigger the gland became. On the whole, he considered iodine therapy was a valuable adjunct in the treatment of exophthalmic goitre.

Dr. J. W. McNEE said his interest was aroused in this aspect of the subject when Means, of Boston, U.S.A., showed, in 1924, the effects of giving Lugol's iodine in cases which were being prepared for operation on the thyroid gland. Within limitations this revival of the treatment of goitre must be classed as a very great improvement as a safe preparation for operation. From 10 to 12 days after commencing the iodine seemed to be the best time for operation, and it could be gauged chiefly by the pulse-rate, without metabolic determinations. He was sure that such a fall of pulse-rate and general improvement could not be brought about, as some contended, by rest in bed alone. Some improvement followed such rest, but on giving iodine it at once became more marked. By operating at the period of 10 or 12 days the general mortality had been definitely reduced, and surgeons could now operate on the gland with much greater safety and take away a larger part of it than they formerly cared to attempt. Since he took an interest in this subject he had noted the frequency with which symptoms returned after hemi-thyroidectomy had been carried out. In the last few months he had seen four cases—one operated on six years ago, one four years ago, and the others three years ago—in which great exacerbation of symptoms occurred; and all had now been re-operated on under the new conditions and all with complete success Even when, after ceasing iodine, there was a return of symptoms, these were never so severe as they had been originally.

With regard to the use of iodine in controlling the so-called crises in exophthalmic goitre, he had not seen in this country cases of anything like the severity of some he saw from the Mississippi Valley in America, the eyes of some of the patients lying out on their cheeks, accompanied by double pan-ophthalmitis, and the people being acutely insane. Still, he had seen in England severe cases with great mental disturbance, and the effect of iodine was to produce a profound and rapid improvement, sometimes within a few hours; 15 ♏ of Lugol's iodine produced great benefit in a day or two. The cardiac failure in Graves's disease—often, but not always, associated with auricular fibrillation—he did not agree was successfully treated by iodine, as alleged by Plummer. In one or two severe cases, with great œdema and ascites and effusions into the pleura, even large doses of iodine produced no effect at all. But when digitalis was substituted for the iodine a good effect was at once obtained. He had tried, in the out-patient department, giving iodine alone for a period of six months, but he had not been impressed with the result, and two he had brought into the ward to put them on to iodine treatment there, and they were subsequently operated upon.

With regard to the mechanism of exophthalmic goitre and how iodine was related to it, he was much interested in the work at Rochester in connexion with the possible presence in these thyroid glands of a substance differing from thyroxin. That work had not yet been published, but it seemed one of the likeliest explanations—namely, that in these cases there was a substance allied to thyroxin but differing from it, in which some of the iodine was replaced by some other compound.

Dr. GUSTAV MONOD (Vichy) referred to the case of a woman, aged 45, who was admitted to hospital with a very definite complex of Graves's disease. She was submitted to X rays, but with no result. She then developed glycosuria, and she was given large doses of insulin for this, while retaining the normal diet. As expected, the diabetic symptoms cleared up immediately, and there was also a rapid improvement in all the exophthalmic goitre symptoms. After a few months, however, the patient developed pneumonia and died. He had found that cases of exophthalmic goitre were very tolerant of insulin. He wondered whether, in supplying insulin to the body, one was bringing about the same result as by performing thyroidectomy.

Prof F R. FRASER said that at the hospital he was attached to 50 cases of exophthalmic goitre had been treated with iodine in the last five years. At the beginning of that period there was no guidance as to dosage, hence, in a certain number of cases, harm was done. Doses of 30 ♏ of the 10 per cent. solution in alcohol a day were used, increased, in some instances, to 60 ♏, and in one case to 180 ♏ per diem. When harm was done it took two forms. One was the production of symptoms of iodism; the other was to cause a great enlargement and hardening of the thyroid gland and an exacerbation of the tachycardia, the palpitations, and the sense of choking. It was later found that results as good followed the use of smaller doses, and gradually the present scale of dosage was evolved. Mainly they used a 10 per cent. solution of iodine in 95 per cent. alcohol. Still, any ionised form of iodine answered equally well. Some people prescribed tincture of iodine which contained a large proportion of iodine as well as iodide. The particular preparation intended should always be specified. At St Bartholomew's Hospital patients had been kept in bed and the severity of their symptoms of intoxication, their basal metabolic rates, &c., estimated, and then they were started on 5 ♏ of the alcohol solution three times a day. When the maximum result had been attained, the quantity was reduced to 10 ♏ a day, this being further reduced to 5 ♏ daily before the patient left the hospital, and this was the largest dose on which patients were allowed to leave the institution, otherwise severe exacerbations were liable to occur before they could be checked. He agreed that, however carefully watched, there were cases in which harm was done,

had their distinguishing characters; they were liable to occur in bone, perinephric tissues, liver. Also spirochætal infections other than those of syphilis must also be remembered, and an acute fever might be associated with coliform infections.

Still another consideration was the form of the temperature chart; sometimes the help derived from this was so great as to be practically diagnostic. The charts should be studied systematically, and not only four-hourly, but over a long period, for then a character might be revealed which was not evident over the shorter periods. Finally, he referred to clinico-pathological helps in diagnosis. It was useful, he said, to make the clinical investigation of a case as thorough as possible before deciding on the pathological investigation to be pursued. It was not justifiable to have all the latter done, partly for economical reasons from the patient's point of view, but also because they were exhausting to an ill person. And pathological findings could only be properly interpreted in connexion with the clinical side. Diagnoses made in the laboratory were often quite brilliant, but also sometimes to be regretted. Sometimes, in these circumstances, a case was diagnosed as lymphatic leukæmia when it was really a mononucleosis. Clinical facts must always be regarded as positive data.

### *Discussion.*

Dr. O. E. Lakin said that most of the cases of the kind under discussion were either instances of a common disease occurring in a disguised form, or were examples of rare or unusual diseases. His contribution consisted of relating cases in which the causation of the fever caused a good deal of difficulty. One was that of a middle-aged man who, when seen, had been ill four weeks. As it was thought to be typhoid a Widal reaction was done, but on this and other occasions it was negative. The man was indifferent to his surroundings, almost stuporose, and a surgeon suggested he had a frontal abscess. The temperature chart suggested typhoid. As the spleen was palpable a further Widal was done, but again with a negative result. In ten days the patient died, and the post-mortem revealed typical typhoid ulcers; the organisms were obtained from these ulcers and from the gall-bladder. A case of supposed apical pneumonia went from bad to worse and was of a puzzling nature, and post-mortem examination revealed extensive carcinoma of the bronchus on the right side. He narrated other interesting cases, and said he believed a number of cases of obscure pyrexia in the absence of symptoms were due to a small dose of infecting organisms.

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With regard to the mechanism of exophthalmic goitre and how iodine was related to it, he was much interested in the work at Rochester in connexion with the possible presence in these thyroid glands of a substance differing from thyroxin. That work had not yet been published, but it seemed one of the likeliest explanations—namely, that in these cases there was a substance allied to thyroxin but differing from it, in which some of the iodine was replaced by some other compound.

Dr. Gustav Monod (Vichy) referred to the case of a woman, aged 45, who was admitted to hospital with a very definite complex of Graves's disease. She was submitted to X rays, but with no result. She then developed glycosuria, and she was given large doses of insulin for this, while retaining the normal diet. As expected, the diabetic symptoms cleared up immediately, and there was also a rapid improvement in all the exophthalmic goitre symptoms. After a few months, however, the patient developed pneumonia and died. He had found that cases of exophthalmic goitre were very tolerant of insulin. He wondered whether, in supplying insulin to the body, one was bringing about the same result as by performing thyroidectomy.

Prof. F. R. Fraser said that at the hospital he was attached to 50 cases of exophthalmic goitre had been treated with iodine in the last five years. At the beginning of that period there was no guidance as to dosage, hence, in a certain number of cases, harm was done. Doses of 30 ♏ of the 10 per cent. solution in alcohol a day were used, increased, in some instances, to 60 ♏, and in one case to 180 ♏ per diem. When harm was done it took two forms. One was the production of symptoms of iodism; the other was to cause a great enlargement and hardening of the thyroid gland and an exacerbation of the tachycardia, the palpitations, and the sense of choking. It was later found that results as good followed the use of smaller doses, and gradually the present scale of dosage was evolved. Mainly they used a 10 per cent. solution of iodine in 95 per cent. alcohol. Still, any ionised form of iodine answered equally well. Some people prescribed tincture of iodine which contained a large proportion of iodine as well as iodide. The particular preparation intended should always be specified. At St. Bartholomew's Hospital patients had been kept in bed and the severity of their symptoms of intoxication, their basal metabolic rates, &c., estimated, and then they were started on 5 ♏ of the alcohol solution three times a day. When the maximum result had been attained, the quantity was reduced to 10 ♏ a day, this being further reduced to 5 ♏ daily before the patient left the hospital, and this was the largest dose on which patients were allowed to leave the institution, otherwise severe exacerbations were liable to occur before they could be checked. He agreed that, however carefully watched, there were cases in which harm was done,

had their distinguishing characters; they were liable to occur in bone, perinephric tissues, liver. Also spirochætal infections other than those of syphilis must also be remembered, and an acute fever might be associated with coliform infections.

Still another consideration was the form of the temperature chart; sometimes the help derived from this was so great as to be practically diagnostic. The charts should be studied systematically, and not only four-hourly, but over a long period, for then a character might be revealed which was not evident over the shorter periods. Finally, he referred to clinico-pathological helps in diagnosis. It was useful, he said, to make the clinical investigation of a case as thorough as possible before deciding on the pathological investigation to be pursued. It was not justifiable to have all the latter done, partly for economical reasons from the patient's point of view, but also because they were exhausting to an ill person. And pathological findings could only be properly interpreted in connexion with the clinical side. Diagnoses made in the laboratory were often quite brilliant, but also sometimes to be regretted. Sometimes, in these circumstances, a case was diagnosed as lymphatic leukæmia when it was really a mononucleosis. Clinical facts must always be regarded as positive data.

### *Discussion.*

Dr. C. E. **Lakin** said that most of the cases of the kind under discussion were either instances of a common disease occurring in a disguised form, or were examples of rare or unusual diseases. His contribution consisted of relating cases in which the causation of the fever caused a good deal of difficulty. One was that of a middle-aged man who, when seen, had been ill four weeks. As it was thought to be typhoid a Widal reaction was done, but on this and other occasions it was negative. The man was indifferent to his surroundings, almost stuporose, and a surgeon suggested he had a frontal abscess. The temperature chart suggested typhoid. As the spleen was palpable a further Widal was done, but again with a negative result. In ten days the patient died, and the post-mortem revealed typical typhoid ulcers; the organisms were obtained from these ulcers and from the gall-bladder. A case of supposed apical pneumonia went from bad to worse and was of a puzzling nature, and post-mortem examination revealed extensive carcinoma of the bronchus on the right side. He narrated other interesting cases, and said he believed a number of cases of obscure pyrexia in the absence of symptoms were due to a small dose of infecting organisms.

Mr. **Zachary Cope** said that a puzzling condition to diagnose was an abscess in the middle of the lung, causing neither pain nor physical signs; he had known such cases diagnosed as neurasthenia. On one patient he was asked to operate for subphrenic abscess, as there was rigidity over one part of the diaphragm, but the leucocyte count was 250,000 per c.mm., and it was found to be a case of spleno-medullary leukæmia. Deep sarcoma could also cause a puzzling pyrexia.

Dr. H. A. **Des Vœux** quoted an instance in which fever of several weeks' duration was found to be due to nothing more than a tape-worm; the temperature kept at 103° to 104°F. Syphilis was sometimes the cause of an obscure pyrexia, and also tuberculosis in an aged person.

Dr. **Herbert French** discussed the question of blood agglutinations helping to decide whether a particular organism was the cause of the trouble in a case. Also whether blood culture methods had been so perfected as to make them valuable for diagnosis, and whether cultures from the urine enabled one to say what organisms were responsible for a prolonged pyrexia.

Dr. F. G. **Chandler** emphasised the importance of the leucocyte count in diagnosing these obscure conditions; leucocytosis enabled a differentiation to be at once made between subphrenic or perinephric abscess and tuberculosis or typhoid. He quoted cases in point.

Dr. G. W. **Goodhart** said he did not think there should be such a thing as a laboratory diagnosis.

Dr. W. J. **Adie** stated that prolonged fever might be due to encephalitis lethargica; the attack might be so mild as not to arouse the physician's suspicion; but the later development of the Parkinsonian syndrome confirmed its nature.

Mr. J. E. H. **Roberts**, Mr. E. B. **Waggett**, Dr. **Lennox Wainwright**, Dr. **Parkes Weber**, and Mr. H. **Tilley** also related cases and the ultimate diagnoses.

The **President** said it would have been of enormous advantage if such a paper as Sir Thomas Horder's had been written and circulated among members of the R.A.M.C. in the early days of the war, remembering the many cases of "P.U.O." He strongly agreed with the opener's suggestion that in cases of obscure pyrexia the clinician should first make a very thorough examination. Many cases of pyrexia remained obscure as to their nature because the physician had not, in the first place, done his work in a proper way. Pathological investigations should follow the clinical in every case. He also agreed with paying attention to everything the patient had to say. In quite a number of cases the cause of pyrexia remained obscure until exploration was made of the gall-bladder region.

Sir **Thomas Horder** replied.

## ROYAL SOCIETY OF MEDICINE.

### COMBINED SECTIONS OF SURGERY, MEDICINE, ELECTRO-THERAPEUTICS, AND THERAPEUTICS.

### Treatment of Exophthalmic Goitre: Iodine Therapy.

At a combined meeting of these Sections held on March 3rd, Dr. **George Graham** (Therapeutics) in the chair, Prof. E. **Mellanby** reminded members that at the discussion of this subject by the Society in 1921 iodine was not even mentioned. This omission was not due to lack of knowledge that iodine had a profound influence on the disease, but was because many recognised that subjects of the disease could be harmed by iodine. But if the capacity of a therapeutic agent to cause harm was to be regarded as a cause for its rejection, the sooner all practitioners became homœopaths the better. Such valuable drugs as mercury, digitalis, ipecacuanha, &c., could do a great deal of harm. The need was to inquire into the conditions in which iodine could produce in the disease baneful effects. In exophthalmic goitre hyperplasia of the gland occurred, and this could easily be induced in dogs. He showed photographs of the thyroid glands of a litter of five dogs, all brought up on ordinary food. The thyroid glands of three were 44 times the size of the others, and the only difference in the diet was that in the case of the dogs with the large glands a little cod-liver oil was given with the food, and to the others was given the same weight of butter (cod-liver oil containing a small quantity of iodine). The small glands were shown to be full of colloid, while in the large ones a condition of real hyperplasia was found. Iodine, therefore, seemed to exercise a profound influence in regulating the size and structure of that gland. The dogs with hyperplasia of the gland had no symptoms of hyperthyroidism. In the latter condition the use of iodine in a few dogs made the heart beat more slowly, sweating was greatly reduced, and the tremors diminished and then disappeared, the state of the patient being changed from one of restlessness and semi-dementia to placidity and almost normality. He showed charts of the pulse-rate and the improvement brought about by giving iodine; the oxygen intake and the basal metabolism were both greatly reduced under the treatment. In one case a basal metabolism which had varied between + 33 and + 18 was brought down to normal on the eighth day by adding 1 gr. of iodine per day to the food. It was at this stage that operation was most favourable, Unfortunately, after this stage had been reached, the symptoms showed a tendency to reappear, even though the iodine treatment was continued and the food was restricted to 1800 calories per diem. Stoppage of the iodine brought about a real exacerbation of symptoms. However long the iodine was persisted with, there was a return of the unfavourable factors on its cessation. The iodine seemed to keep the intensity of the symptoms in check. In some cases the usual effect just described did not follow the giving of iodine. The first effect might give place to a sudden acute exacerbation of symptoms, the basal metabolism went up, and the patient became much worse. Recovery occurred in a few days, and if the treatment were continued thereafter another exacerbation ensued. The cases in which this occurred were those of toxic adenomata, people who had had large thyroids and who then developed hard, knobby glands. Their acini were very distended and swollen owing to the contained colloid. Sometimes the thyroid got so large that it caused respiratory obstruction, rendering operation imperative, and not at a stage which the surgeon would choose for it.

Among the advantages of iodine therapy were that a rapid disappearance of the symptoms was brought about by giving iodine, and this proved a valuable aid to surgery. The general condition of the patient was also greatly improved. Some cases completely recovered after this treatment; he had tested some over a period of four years. Many said that if cases of exophthalmic goitre were left alone they would recover spontaneously, and some evidence was available to that effect, while at the last discussion on the subject Sir William Hale-White supported the contention by statistics. The disadvantages were that in some cases, particularly in secondary Graves's disease or toxic adenoma, there were certain definite dangers of a sudden exacerbation of symptoms. This was so pronounced that he did not now give such people—with hard, knobby glands—iodine at all. A further disadvantage was that stoppage of the iodine caused an exacerbation of symptoms. Another was the danger of asphyxia due to the colloid-filled gland causing pressure on vital structures. He gave the patients a good diet, but kept the total calories low, as in experimental animals it was found that the greater the quantity of food taken the bigger the gland became. On the whole, he considered iodine therapy was a valuable adjunct in the treatment of exophthalmic goitre.

Dr. J. W. **MCNEE** said his interest was aroused in this aspect of the subject when Means, of Boston, U.S.A., showed, in 1924, the effects of giving Lugol's iodine in cases which were being prepared for operation on the thyroid gland. Within limitations this revival of the treatment of goitre must be classed as a very great improvement as a safe preparation for operation. From 10 to 12 days after commencing the iodine seemed to be the best time for operation, and it could be gauged chiefly by the pulse-rate, without metabolic determinations. He was sure that such a fall of pulse-rate and general improvement could not be brought about, as some contended, by rest in bed alone. Some improvement followed such rest, but on giving iodine it at once became more marked. By operating at the period of 10 or 12 days the general mortality had been definitely reduced, and surgeons could now operate on the gland with much greater safety and take away a larger part of it than they formerly cared to attempt. Since he took an interest in this subject he had noted the frequency with which symptoms returned after hemi thyroidectomy had been carried out. In the last few months he had seen four cases—one operated on six years ago, one four years ago, and the others three years ago—in which great exacerbation of symptoms occurred; and all had now been re-operated on under the new conditions and all with complete success. Even when, after ceasing iodine, there was a return of symptoms these were never so severe as they had been originally.

With regard to the use of iodine in controlling the so-called crises in exophthalmic goitre, he had not seen in this country cases of anything like the severity of some he saw from the Mississippi Valley in America, the eyes of some of the patients lying out on their cheeks, accompanied by double pan-ophthalmitis, and the people being acutely insane. Still, he had seen in England severe cases with great mental disturbance, and the effect of iodine was to produce a profound and rapid improvement, sometimes within a few hours; 15 ♏ of Lugol's iodine produced great benefit in a day or two. The cardiac failure in Graves's disease—often, but not always, associated with auricular fibrillation—he did not agree was successfully treated by iodine, as alleged by Plummer. In one or two severe cases, with great œdema and ascites and effusions into the pleura, even large doses of iodine produced no effect at all. But when digitalis was substituted for the iodine a good effect was at once obtained. He had tried, in the out-patient department, giving iodine alone for a period of six months, but he had not been impressed with the result, and two he had brought into the ward to put them on to iodine treatment there, and they were subsequently operated upon.

With regard to the mechanism of exophthalmic goitre and how iodine was related to it, he was much interested in the work at Rochester in connexion with the possible presence in these thyroid glands of a substance differing from thyroxin. That work had not yet been published, but it seemed one of the likeliest explanations—namely, that in these cases there was a substance allied to thyroxin but differing from it, in which some of the iodine was replaced by some other compound.

Dr GUSTAV **MONOD** (Vichy) referred to the case of a woman, aged 45, who was admitted to hospital with a very definite complex of Graves's disease. She was submitted to X rays, but with no result. She then developed glycosuria, and she was given large doses of insulin for this, while retaining the normal diet. As expected, the diabetic symptoms cleared up immediately, and there was also a rapid improvement in all the exophthalmic goitre symptoms. After a few months, however, the patient developed pneumonia and died. He had found that cases of exophthalmic goitre were very tolerant of insulin. He wondered whether, in supplying insulin to the body, one was bringing about the same result as by performing thyroidectomy.

Prof F R. **FRASER** said that at the hospital he was attached to 50 cases of exophthalmic goitre had been treated with iodine in the last five years. At the beginning of that period there was no guidance as to dosage, hence, in a certain number of cases, harm was done. Doses of 30 ♏ of the 10 per cent. solution in alcohol a day were used, increased, in some instances, to 60 ♏, and in one case to 180 ♏ per diem. When harm was done it took two forms. One was the production of symptoms of iodism, the other was to cause a great enlargement and hardening of the thyroid gland and an exacerbation of the tachycardia, the palpitations, and the sense of choking. It was later found that results as good followed the use of smaller doses, and gradually the present scale of dosage was evolved. Mainly they used a 10 per cent. solution of iodine in 95 per cent. alcohol. Still, any ionised form of iodine answered equally well. Some people prescribed tincture of iodine which contained a large proportion of iodine as well as iodide. The particular preparation intended should always be specified. At St. Bartholomew's Hospital patients had been kept in bed and the severity of their symptoms of intoxication, their basal metabolic rates, &c., estimated, and then they were started on 5 ♏ of the alcohol solution three times a day. When the maximum result had been attained, the quantity was reduced to 10 ♏ a day, this being further reduced to 5 ♏ daily before the patient left the hospital, and this was the largest dose on which patients were allowed to leave the institution, otherwise severe exacerbations were liable to occur before they could be checked. He agreed that, however carefully watched, there were cases in which harm was done, and these were those of secondary Graves's disease. The dose for these had to be cut down to 2 ♏ a day; he believed every case of thyroid intoxication could be benefited if the right dose of iodine for that particular patient was ascertained. He agreed that cases of circulatory failure responded poorly to the treatment. He did not doubt that by means of iodine, carefully adjusted in this way, the disease ran its course at a lower level of intoxication than normally, and that if it was going to recover spontaneously it did so having run the milder course. He was also convinced that the treatment was most valuable in getting patients ready for surgery; also, it was very beneficial given for a long time after operation. He had not seen the severe crises referred to by Dr. McNee, but recently a girl was being given thyroxin intravenously. At first she improved a little, but after some days her pulse rose, she became excited, had tremor, and her level of intoxication rose. She was put on to iodine, and everything came down nicely in two or three days. He concluded by showing a number of charts of cases and relating their clinical histories.

Mr. T. P. **Dunhill** said that when a patient was very ill there was always a tendency for the surgeon to hope that he could stop the disease, or for the surgeon to be persuaded by the physician to operate against his better judgment. The operation for exophthalmic goitre should never be one of emergency; the patient should be in a proper condition for operation before such was attempted. After the preliminary iodine treatment already outlined had been given, there was not only less operative risk, but less blood was lost at the operation, and this was all to the patient's benefit after the operation. In the actual carrying out of the operation he found that in the iodised patient one could encroach more without harm on the region of the recurrent laryngeal nerve, and that it did not slip back in the loose cellular tissue. The iodine seemed to have changed the secretory stage to a colloid stage—i.e., the gland had reverted to a resting stage. In exophthalmic goitre there seemed to be produced a molecule, not that of thyroxin, which was poisonous, and hence the body was not receiving that which enabled it to carry on its normal metabolism. When iodine was given it did not stop the secretion of this poisonous substance but made up the iodine deficiency. He suggested that perhaps less of the gland could be removed than had been customary and yet secure as good a result, though he thought these patients never became quite normal again. Operation was nothing more than an expedient, and search for the cause of the condition should still be continued. Plummer did not claim that iodine would do good in every type of case; he said that in two-thirds of the cases the result was striking. In about 5 per cent. of the cases it was harmful. That seemed to be the general experience in this country too. The work of Scott Williamson and of Mellanby showed that there was a marked difference between the primary and the secondary types of goitre. In the primary there was very little fibrosis, in the secondary a great deal. Every grade between the two was met with. He warned Fellows against accepting such statements, as that all cases of exophthalmic goitre were so greatly improved by being given iodine that surgical operations on them became safe, or that the degree of preparation usually given to them had become unnecessary, or that after the operation they could safely leave the nursing home in five or six days.

Dr. J. A. **Ryle** spoke of the over-zealous attempt to find a specific method of therapy for a disease which was admittedly non-specific. He urged that there should be a more critical attitude adopted towards the problem. Very little was known of the causal pathology of this disease, and he believed that in producing the flare-up of symptoms many factors were at work—perhaps physical, metabolic, and infective. Certainly there was an emotional factor, both in its initiation and its perpetuation, and hence the search for a simple chemical answer should at least be undertaken with care. He did not dispute that iodine had a definite effect on certain cases of exophthalmic goitre, nor that salicylates produced an effect on rheumatic fever. But the pathological course of the latter was not influenced by salicylates. Sir William Hale-White had insisted on the importance of a study of the life-history of a disease when left to itself, and drew attention in the last discussion to the tendency of this disease to natural recovery. Indeed, very good figures resulted from "skilful neglect," and he had never yet felt called upon to ask a surgeon to help him with a case. Summing up his attitude on the subject, he said he preferred to treat a case with optimism rather than with iodine.

Dr. E. G. **Calvert** said that in the last three years he had treated 60 cases of exophthalmic goitre with iodine, and he agreed as to its beneficial effects. Coincident with the improved clinical condition of the patient he noted that the gland became firm, and if the iodine was pushed so that the gland became of stony hardness the results were not of the best. The best results ensued from giving from 3 to 7 ♏ of Lugol's iodine. He exhibited photographs of cases and gave the details of the treatment pursued in each case, with the clinical results.

The **Chairman** said it had become evident that, though iodine could do much for patients suffering from exophthalmic goitre, it might prove for some, especially if the dosage was not correct, a very dangerous drug. He alluded to the desirability of setting up some standard preparation with a known iodine content. He also referred to the value of large doses of iodine for acute tonsillitis with auricular fibrillation in association with exophthalmic goitre, and related a case in point.

*(To be continued.)*

# ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.

A meeting of this Association was held in London on Feb. 16th, Sir **Frederick Mott**, the President, being in the chair. After resolutions of condolence with the families of the late Dr. Henry Rayner and the late Dr. W. D. Moore had been passed, Dr. **Isabel Robertson** read a paper on

### *Blood and Vascular Conditions in Psychoses.*

She recapitulated certain observations on the hæmoclastic crisis in psychoses, and submitted the results of further work on the effect of hyoscine and adrenalin on the production of that crisis in encephalitis lethargica. The reaction, she contended, was real and was not related to such factors as normal variations in the leucocytes, and was able to show that reversals of reaction occurred under the influence of sympathetico- and para-sympathetico-ministic drugs. The crisis was characterised by leucopenia, fall of blood pressure, inversion of the leucocytic formula, hypercoagulability of the blood, and diminution of the refractive index of the serum. To demonstrate its presence 200 g. of milk was administered to a subject who had fasted since the previous night. The leucocytes, differential leucocytes, and blood pressure were noted before the taking of the milk, and at intervals of 20, 40, and 60 minutes after it. The maximum disturbance was generally at the 40-minute interval. In 50 well-marked cases of dementia præcox of all types and at all ages 94 per cent. reacted to the ingestion of milk by a definite hæmoclastic crisis. In 70 per cent. of these the leucopenia was accompanied by a fall in blood pressure of from 3 to 12 mm. of mercury. In cases of melancholia, acute and chronic, 75 per cent. definitely gave the crisis, 15 per cent. a normal leucocytosis, and 10 per cent. an indeterminate result; 55 per cent. of the mania cases examined showed the hæmoclastic crisis, 20 per cent. gave a normal leucocytosis, and 20 per cent. an indeterminate result. Commenting on a paper by Dr. A. F. B. Shaw,[1] in which the crisis was discussed as a test for liver function with special reference to leucocytic changes, Dr. Robertson said that Dr. Shaw's paradoxical results were similar to those she obtained and termed intermediate. She found that the general effect of heat in normal subjects was to cause a leucocytosis, but if the heat were intense there was a leucopenia. Similarly, ordinary cold caused leucopenia, but prolonged cold caused leucocytosis. The leucocyte count could be affected by psychic and emotional disturbance, and the variations might be both rapid and intense. With care and proper technique, however, it was possible to obtain leucocytic equilibrium within an hour.

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[1] Brit. Med. Jour., 1925, i., 914.

Investigations had been made in 275 early psychotic cases ranging from the milder neuroses to the more acute forms of mental trouble; 49 per cent. showed the hæmoclastic crisis, 12 5 per cent. gave an intermediate reaction, and 38 5 per cent. reacted normally by a leucocytosis; 50 per cent. of the intermediate ones showed the hæmoclastic crisis later. There seemed to be some prognostic value in the presence or absence of the crisis in these cases. Investigations on the ingestion of milk following the administration of adrenalin, atropine, and pilocarpine showed that adrenalin and atropine could convert the leucopenia into a leucocytosis, though neither had any influence on the leucocytosis occurring in the normal subject The effects of pilocarpine were too varied to permit of a statement being made. Administration of thyroid caused a reversal of the reaction; it produced the crisis in a normal subject.

### *Hæmoclasia and Encephalitis Lethargica.*

Dr. Robertson said that 13 of 15 cases of encephalitis lethargica reacted to ingestion of milk by a definite leucopenia, the other two by a leucocytosis. The effect of the subcutaneous injection of hyoscine on the encephalitic cases was a leucopenia in all except one. In the cases of chorea the drug caused a marked leucocytosis in four, a slight leucocytosis in one, and a leucopenia in one. Thus the tendency was for the effect of hyoscine to resemble the response to milk, though this did not hold absolutely.

In the investigation of anaphylaxis it was established that certain phenomena occurred at the time of, or just before, the onset of anaphylactic symptoms. The most important were a fall in the leucocyte count, a drop in the arterial blood pressure, hypercoagulability of the blood, and a diminution of the refractive index of the serum. This crisis was demonstrable in asthma, paroxysmal hæmoglobinuria, epilepsy, and other conditions. Anaphylactic shock, Dr. Robertson said, was not due to a specific poison, but could appear as a result of a physical process. Schiff had shown that a marked eosinophilia occurred in the blood during anaphylactic shock. There seemed to be a similarity between hæmoclasia and anaphylaxis. Gluser had found that after an active dose of adrenalin or atropine the leucopenia following the ingestion of milk could be converted into a leucocytosis, and that in a normal person pilocarpine converted the leucocytosis into a leucopenia, his conclusion from this being that the hæmoclastic crisis was a change in the equilibrium between vagus and sympathetic tonus. Hæmoclasia occurred after glucose in practically every case of diabetes, but after the ingestion of milk in less than 50 per cent. In her summary Dr. Robertson said that hæmoclasia occurred in 94 per cent. of cases of dementia præcox, 85 per cent. of melancholias, 75 per cent. of manias, and 88 per cent. of encephalitis. The blood changes were in the venous blood as well as in the blood at the periphery She suggested that a condition of anaphylaxis existed in cases showing hæmoclasia, and that this condition depended on the condition of the sympathetic nervous system.

### *Discussion.*

Dr. F. L. GOLLA agreed that the reaction was one that could be obtained with unfailing accuracy when certain precautions were observed. But those who hoped to discover by this reaction some form of mental or nervous disease were doomed to disappointment. It was a simple phenomenon, uncomplicated by the ingestion or absorption of foreign proteins. In one case Dr. Robertson had found that it varied according to whether the patient was standing up or lying down, and reversals could be obtained by administering adrenalin or thyroid extract. The bronchi and the musculature of the lungs were also involved in the reaction; if the bronchi were contracted, as in asthma, there was one reaction; if they were dilated, there was a reversal of that reaction, and the same was true of the sympathetic nervous system elsewhere. A minute dose of adrenalin caused relaxation; a larger dose was followed by constriction. The reactions depended on the state of the receptive organ The reaction was not diagnostic, but it showed that an organ was in a certain state of either equilibrium or dysequilibrium. It also seemed that it would be of value in prognosis. At the bottom of nervous conditions there seemed to be a maldisposition of the vegetative nervous system.

Dr A A W. PETRIE said that in his experience a high proportion of anxiety cases gave a positive reaction, perhaps largely because they returned to hospital after a trying time at home. A very high proportion of cases of dementia præcox gave the reaction He agreed that the test promised to be of great assistance in prognosis; it might show with fair truth what cases were likely to pass into the certifiable stage.

The PRESIDENT said that this was a very important piece of work in showing the dysequilibrium of the vegetative nervous system which was common to all cases of psychosis. Owing to a change in the hydrogen-ion content of the blood, he thought the surface tension of the fluid might be altered, so that the leucocytes adhered more to the sides of the vessels.

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## NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

AT a meeting of this Society held in Sheffield on Feb. 10th, Mr. W. GOUGH (Leeds), the President, occupied the chair, and Mr. A. LEYLAND ROBINSON (Liverpool) showed an

### *Ovarian Cyst*

removed from a healthy, well-developed girl of 11 years.

She complained of abdominal discomfort for one week, and on examination her doctor discovered a tumour extending up to the umbilicus, which had all the physical signs of a simple serous cyst. A vaginal examination made under anæsthesia immediately before operation disclosed typical dermoid consistency of the lower pole of the swelling, and suggested the dual pathological nature of the tumour. Removal was easy, and convalescence uneventful. It was noticed at the operation that the uterus was narrow and elongated, probably as a result of pressure from the tumour, and perhaps of hypofunction of the ovary. The external genitalia were normal.

The specimen proved to be a bilocular cyst, the lower loculus showing the usual characters of a dermoid, and the upper one those of a serous cyst adenoma.

These cases, said Mr. Robinson, were not very uncommon in children under 10 years of age. Bland-Sutton had collected 100 cases, and Howard Kelly had published 126 in 1901, of which 55 were unilocular or multilocular cyst adenomata, 47 were dermoids, and 24 were solid tumours of the ovary. Many tumours had been successfully removed from quite young infants. D'Arcy Power had operated on a child of 4 months, and MacGillivray in 1908 had described a very interesting operation at which he successfully removed a cyst which completely filled the abdomen of an infant of 11 months. The chief points of interest in the present case were the association of a dermoid cyst with a serous adenoma, the almost complete absence of symptoms, which were generally those of an acute abdomen and due to torsion, and the attenuated appearance of the uterus. Possibly there would be persistent infantilism as a result of the loss of the left ovary, which might offer an excellent opportunity for the use of glandular extracts during pubescence.

### *Tumours of the Vulva.*

Mr. Robinson also reported two cases of tumours of the vulva which were sent to hospital with a diagnosis of Bartholin's cyst. The first, in a single multiparous woman of 33 years, proved to be a fibromyoma of the vulva; it would be called a dermoid by some pathologists. These dermoids were described as connective-tissue tumours of the female abdominal wall, which display active growth during pregnancy and have a pathological relationship to the fibrosarcomata. The probability was that they were merely fibromyomata arising in the round ligaments, or some outlying or displaced rest of myometrial tissue, which grew in unison with the uterine muscle during pregnancy. The cellular appearance produced by this decidual or pregnancy reaction had been mistaken for malignancy, and had led to the incorrect inclusion of these tumours amongst the sarcomata. The second tumour was a carcinoma of Bartholin's gland.

The patient was a widow of 55 years of age, 17 years past the menopause, with no history of gonorrhœa or any serious illness. There had been four abortions, the last 20 years ago, and no full-term labours. The patient complained of some dragging pain in the vagina and of a lump in the vulva which was first noticed four months before seeking advice. It had been getting bigger lately.

A swelling the size of a hazel nut was found in the right labium majus, in the anatomical position of Bartholin's gland. It was slightly tender and solid in consistency. The overlying skin was perfectly normal in appearance and mobility. No glands could be felt in either groin. Local excision only was done, partly because the patient's general condition was very poor and partly because the diagnosis of malignancy rested on suspicion alone. There were no enlarged glands, and it was thought that as this type of malignant disease is very rare, the lump might turn out to be a simple adenoma.

A small secondary hæmorrhage occurred on the ninth day of convalescence, but otherwise the patient made a smooth recovery, and remains well at the present day, seven months later, during which time she has been under treatment by X ray therapy.

In 1913, said Mr. Robinson, Dr. Herbert Spencer had published a similar case, and had included in his paper 13 which he had been able to collect from the literature, of which only one had been published in English journals. Spencer stated that these tumours are harder than an inflamed gland, nodular on the surface, and associated with bluish discoloration of the skin and œdema of the hymen; but 14 cases were too few to dogmatise on, and practically none of these points were seen in his, Mr. Robinson's, case. Of the 14 examples collected by Spencer, in one only had there been any positive history of gonorrhœa, and in only three was leucorrhœal discharge a feature; so that previous infection had little, if any, ætiological significance. Congenital abnormality had been noticed in two cases, Bartholin's gland being apparently absent on the side opposite to the tumour. The pathological appearances varied greatly, and little agreement existed amongst the 14 authors. In three cases the growth was described as carcinoma only, in two as cylindrical carcinoma, and in the remainder as follows: *Melano-carcinoma*; *tubular carcinoma, partly scirrhus*; *carcinoma parvi cellulaire*; *cancroise carcinoma*; *adeno-carcinoma*; *villous carcinoma*; *squamous-celled carcinoma*; and *adeno-carcinoma, resembling squamous*. Spencer pointed out that the pathological differences were associated with the fact that the epithelium lying around the acini and ducts varied considerably in shape and arrangement, and hence the gland might well give rise to tumours of diverse appearances. He quoted Jambon and Chaboux, who had examined the glands of several young adults after death. They stated

> "that the excretory ducts appear in the middle of the gland in the form of irregular cavities, reaching even to the middle of the acini. They present an epithelium either of one or several layers of cubical cells Generally, as the duct increases in calibre and importance, its epithelial lining becomes thicker. The cells are only half the size of the secretory cells of the acini, and consist of a large nucleus surrounded by a thin layer of granular protoplasm; near the termination of the common duct the superficial layers of the lining epithelium tend to become squamous."

These authors say nothing about distinctly cylindrical epithelium in the duct, though this is mentioned by de Sinety, Klein, and Langerhans. In the present case there could be no doubt that the tumour was an adeno-carcinoma. These growths were said to be of great malignancy, and of the 14 cases mentioned by Spencer only one survived six years after operation. "It is interesting to note," said Mr. Robinson, "that in this case, as in my own, no glands were removed. I hope to report the progress of the case to the Society at some later date."

### *Chronic Inversion of the Uterus.*

Dr. D. DOUGAL (Manchester) reported the following case.

Mrs. H., married, aged 24, complained of constant bleeding which began six weeks after confinement 14 months previously. At the confinement the child was born without interference, but the placenta had to be removed manually. She states that she was much shocked at the end of the labour, and her convalescence was slow. She was extremely anæmic, and on vaginal examination a soft swelling was felt protruding through the cervix. This tumour bled a good deal on being handled. The fundus of the uterus could not be felt in its normal position, and chronic inversion was diagnosed.

Attempts to reduce the displacement with repositors, both Aveling's and another, were unsuccessful, and it was decided to use surgical means. Spinelli's operation was chosen. This is really an extensive anterior hysterotomy, but in this case it was somewhat awkward to carry out owing to the inverted structures. The anterior wall of the uterus had to be incised as high as the fundus before it was possible to reduce the displacement. There were no adhesions present at the neck of the sac, but the peritoneal surfaces about the fundus were adherent to one another; the remains of a partially atrophied fibroid, about the size of a bean, were found on separating the adhesions. This tumour was excised, and the uterus stitched up. There was a good deal of oozing which could not be completely controlled, and so a narrow gauze drain was left in contact with the anterior uterine wall. The vaginal wall was then sutured in the usual way, a small part being left open for the gauze to pass through.

The patient made an uneventful recovery, and is now, three months later, menstruating regularly and losing a normal amount of blood at the periods.

The inversion, Dr. Dougal said, might have been caused by extracting a partially separated placenta; but, on the other hand, it might have been spontaneous, the fibroid tumour at the fundus of the uterus playing some part in the process. The failure to replace the uterus with the repositor had no doubt been partly due to the fact that the anterior and posterior surfaces of the uterus were adherent in the neighbourhood of the fundus.

### *Ruptured Uterus.*

Dr. C. P. BRENTNALL (Manchester) reported a case of ruptured uterus in a woman, aged 38 years, in her sixth pregnancy.

The first four labours were normal and at full term; the fifth was premature, and the child was stillborn. There was a minor degree of pelvic contraction; the transverse measurements were normal, and the conjugate slightly reduced. The external conjugate measured less than 7 inches. There were no abnormalities during pregnancy, and labour began about the estimated date. Pains began at 8 A.M., and continued until about 5.30 P.M. They do not appear to have been severe; there were long intervals between them, and the woman was still going about the house when her husband returned from work at 5.30. Shortly afterwards the membranes ruptured, the uterine contractions recommenced, and she took to her bed. She says that she bled a good deal during the evening, but this is doubtful as the midwife did not send for a doctor until about midnight. The pains continued without intermission until 2.30 in the morning. She was seen by two doctors about midnight, and was immediately sent to hospital with the diagnosis of impacted breech. There appears to have been no attempt at any operation.

She arrived at hospital at 2.30 A.M. Labour had then lasted 18½ hours, and the membranes had been ruptured nine hours. She was very pale and shocked. Abdominal examination revealed the obvious fact that the uterus was ruptured. The body of the fœtus could be felt to one side and the contracted uterus to the other. The lower abdomen was very tender, and she complained of pain in the left shoulder. The fœtal head was quite low down in the pelvis, lying in the transverse diameter, and there was a depressed fracture of the posterior parietal bone. The fœtus was delivered by craniotomy, and the placenta removed manually. It seemed doubtful whether the woman would stand an abdominal section, but it appeared to be her only chance. When the abdomen was opened a longitudinal tear of the uterus was discovered, extending from the attachment of the round ligament, and involving the upper part of the vagina. Both layers of the broad ligament were torn across, but the Fallopian tube and infundibulo-pelvic ligament were intact. The uterus was removed as rapidly as possible by panhysterectomy, and the vaginal wound closed. The pelvis was drained by a rubber tube in the lower angle of the incision.

Dr. Brontnall remarked that there were one or two unusual features about the case. Ruptures of the uterus were, of course, of more frequent occurrence in the minor than in the major degrees of contracted pelvis, and they were commoner in multiparæ than in primigravidæ. But in such cases there was generally a history of dystocia, and the supposition was that some undetected injury to the soft parts gave way at the subsequent labour. In this case the pelvic contraction was of a very minor degree, the pelvis being of the simple flat variety; and all the previous confinements had been completed without difficulty or undue delay. There was no early rupture of the membranes, and if it was assumed that the second stage of labour began when the waters broke, its total duration had been not more than nine hours. The most unusual feature of the case appeared to be that the head had passed the brim and was well down in the pelvis.

Amongst other contributions to the meeting was a note on two cases of Wertheim's hysterectomy complicated by double ureter, by Prof. W. FLETCHER SHAW (Manchester).—The PRESIDENT showed a specimen of carcinoma of the cervix from a patient aged 20, and Prof. SHAW reported having seen the condition in a woman of 22.—Prof. J. S. C. DOUGLAS and Mr. W. W. KING (Sheffield) demonstrated a specimen of mucocele of the appendix.—Mr. KING described a case of adenomyoma of the uterus, and Dr. DOUGAL gave an account of a case of double placenta in which there was placenta prævia, and marginal and velamentous insertion of the cord.

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# ROYAL ACADEMY OF MEDICINE IN IRELAND.

## SECTION OF SURGERY.

AT a meeting of this Section held on Feb. 10th, Mr. R. C. B. MAUNSELL, *the President, took* the chair, and Mr. W. E. MILES (London) read a paper on

### *Carcinoma of the Rectum.*

He said that he had treated 587 patients for this condition, in 311 of whom the disease had come on between the ages of 50 and 60; the incidence had been almost equal in men and women. There was only one type of cancer of the rectum—an adenocarcinoma. But there were three varieties of carcinoma which were recognised clinically and which differed in malignancy—the papilliferous type, the adenoid type, and the colloid degenerative type. In the first, which was the least malignant kind, involvement of the glands was seldom found; even after a restricted operation the growth was not apt to recur. This type was not as common as the others. The adenoid type was much more malignant. There were always infiltrations, and only an operation which aimed at removing the vulnerable tissues would protect a patient against recurrence. The colloid type affected the connective tissues. It was the most malignant type of cancer, and practically always recurred, even after the most drastic operation. These three varieties of carcinoma might be met with in any part of the rectum.

Referring to symptoms, Mr. Miles said that if attacks of alternating constipation and diarrhœa were waited for, a case might be missed which would otherwise be amenable to treatment, for sometimes these attacks did not occur until the disease was very far advanced. The position of the cancer made a difference to the rapidity with which they developed. There might, however, be actual difficulty in obtaining an action of the bowels at all, and this was an urgent symptom. Ampullary growths might persist for a considerable time before they produced enough symptoms for notice. If the liver was involved in a case of cancer of the rectum it might be taken for granted that the growth had penetrated the peritoneum, and that operation was now contra-indicated. It was impossible to say how long these growths might exist without producing any symptoms, but certainly they might be present for six months before any symptoms showed themselves. The extent of the circumferential involvement was an index of the depth of the growth and of the length of time the disease had been present. The operability or inoperability of a case could not be estimated by digital examination alone, and it was absolutely necessary to open the abdomen and see what the condition of extramural extension was. The dissemination of cancer from the extramural lymphatics was slight.

The PRESIDENT drew attention to the lack of symptoms in rectal cancer, except when the growth was low down near the anal canal, when the pain was very severe.

Sir WILLIAM TAYLOR said that there was only one scientific method of dealing with the condition, and that was the combined abdominal and perineal operation. It was undesirable, he agreed, to estimate the operability by digital examination alone; secondary deposits in the liver could sometimes only be detected by laparotomy and examination of the upper surface of the viscus. Carcinoma of the rectum seemed relatively uncommon in Irish practice, but in his comparatively limited experience only one case in six was operable. At the Mayo Clinic recently he had seen six cases operated on within two days by the parasacral method after preliminary colostomy. The mortality rate for this procedure was, he believed, about 5 per cent.; but the operation now done at the Mayo Clinic was the combined abdominal and perineal one.

Mr. SETON PRINGLE said that there was only one really radical operation for carcinoma of the rectum, and that was the combined abdominal and perineal operation. The immediate mortality might be high, but the cases which got over the operation had a reasonable chance of permanent recovery.

Mr. H. F. MACAULEY said that he thought the vast majority of cases of carcinoma of the rectum seen in Dublin were inoperable. Frequently he found nodules in the liver, and could not go on to further operation.

Mr. H. S. MEADE said that in the last ten years he had seen 46 cases of carcinoma of the rectum, of which 26 were inoperable. Eleven of these, though operable, had refused operation because colostomy had been done. Of the other inoperable cases two survived and were getting deep X ray treatment. He had operated on 20 cases. In the first eight he had done the perineal operation, and all of them were dead except one. In the remaining 12 he had used the combined abdominal and perineal method; seven had died but the other five were still alive.

Mr. MILES, replying, said that even in early cases only the biggest possible operation gave the possibility of safeguarding against recurrence. In obstructive cases he always performed cæcostomy.

## SECTION OF PATHOLOGY.

AT a meeting of this Section held on Feb 12th, Prof. J. W. BIGGER, the President, read a communication on the Tests for Yeasts used in Baking. The production of baking yeast, he said, was now almost a separate industry from that of yeast for brewing

He discussed the qualities desirable in baking yeast and the tests for estimating them.

Mr. R. A. Stoney and Dr. J. T. Wigham showed a specimen of sarcoma of the testis from a man, aged 30, with a previous history of phthisis. The earliest sign had been a swelling of the epididymis, which was clinically indistinguishable from a tuberculous epididymitis.—Dr. W. Boxwell showed specimens of sarcoma in lungs and brain, secondary to a round-celled sarcoma of the testis removed nine months previously. —Dr. W. D. O'Kelly showed a chorion epithelioma, and Dr. N. Falkiner showed some plates which he had presented to the School of Physic.

## EDINBURGH OBSTETRICAL SOCIETY.

At a meeting of this Society held on Feb. 10th Dr. R. W. Johnstone, the President, took the chair, and Dr. James Young read a communication on the

### *Embedding Changes in the Uterine Mucosa as Studied in an Early Human Ovum.*

The ovum, he said, was situated in a completely closed implantation chamber, but extending from its outer surface through the entire thickness of the mucous membrane there was a narrow stalk of trophoblast which indicated the track of entrance. Externally it measured 1·5 × 0·77 × 0·6 mm., and the trophoblast consisted of the usual dual cellular elements. There was no evidence of the vacuolation of the syncytium present in the Bryce-Teacher ovum, which he believed to be probably abnormal. The blastocyst measured 0·44 × 0·3 mm.; it was filled by mesoblast and there were no villi. The embryonic area was too badly damaged to allow of a satisfactory study. The ovum in its general features resembled the two earliest ova so far described—namely, those of Miller and Kleinhans. The maternal changes were similar to those which Dr. Young had described in 1910. To understand these changes it was necessary to remember that the uterine mucous membrane was unique amongst the tissues of the human organism in so far as its function, both during the menstrual cycle and during pregnancy, was fulfilled by a discharge of blood from its vessels. The mucosa thus bled in anticipation, and it bled again with realisation. Despite the unique character of this phenomenon it had often been believed that the menstrual bleeding and the bleeding of pregnancy were necessarily two different processes. In one case it was due to the ovarian hormone, whilst in the other it was thought to be due to the active destruction of the vessel-walls and the mechanical liberation of the blood. But if the bleeding that was essential to placentation could be accomplished in this mechanical way, why then, it was asked, had there been built up all the physiological and structural complex, whose obvious function was an immediate opening up of the vessels and a discharge of the blood at the very regions where the ovum could be expected to appear?

In his previous work Dr. Young professed to have solved this obvious dilemma by showing that the bleeding of the menstrual cycle and the bleeding round the engrafted ovum were essentially similar and were due, in each case, to the response of a specially constructed and specially sensitised tissue to a biochemical material. He had shown that during pregnancy the vessels open up in a way which is exactly similar to that operating in the pre-menstrual phase. His views, published 16 years ago, on the essential similarity of the menstrual and placental hormones in so far as the uterine changes were concerned were supported by the recent work of Allen and Doisy and others, who had shown that pre-œstral changes in ovariectomised animals can be induced by both ovarian and placental extracts. Dr. Young had previously shown that the ease with which this "bleeding" response occurred was due to the fact that the stroma of the mucosa consists of a soft undifferentiated tissue, in which the vessels are devoid of any supporting elements, muscle, fibrous, or elastic tissue.

The nature of the maternal reaction in his present very early ovum confirmed his previous results. In a wide zone round the implantation chamber the vessels were expanded in a sinus-like manner and in areas distant from the trophoblast their contents were being poured freely into the stroma. The result of this bleeding response to the chorionic secretion was a virtual advance of the nourishing blood fluids towards the ovum, and, in the immediate vicinity of this, a pouring of the blood into the implantation chamber from vessels, which were thus like rivers that had overflowed their banks. Only by an understanding of these phenomena could we appreciate the function of the decidua. It was obvious that these maternal changes were temporary and had as their sole purpose the needs incidental to embedding. After this was accomplished and a sufficient blood-supply was provided, it was clear that the active displacement of tissue which they implied had to be arrested. This later and entirely different phase in placentation could only be possible in one or other or both of two ways—by a suspension of the chorionic secretion or by a protective mechanism on the part of the maternal tissues. Dr. Young in this connexion showed sections of pregnant tubes in which the only regions where the tissues were protected against a tearing up by the œdematous and hæmorrhagic escape provoked by the chorionic secretion were the regions, in the mucous membrane, where a decidual reaction had occurred. He believed that in the uterus in normal pregnancy the decidua acted in a similar way. A recognition of these facts could alone explain why the whole mucosa —that is, the whole of the sensitive tissue—must necessarily undergo a decidual change.

## LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

### *Sanocrysin.*

At a meeting of this Society held on Feb. 26th, with Mr. A. L. Whitehead, the President, in the chair, Prof. T. R. Elliott (London) read a paper on Sanocrysin in Tuberculous Infections. He gave a résumé of the British and foreign experience of this drug, pointing out that it was now given in smaller doses than at first, so that dangerous reactions should be avoided. It was possible, he said, that this gentler method of using sanocrysin was less effective in arresting the disease. In the discussion which followed Prof. Elliott expressed the opinion that it was unlikely that the drug would prove useful in lupus. He did not feel that its use was justified in cases of renal tuberculosis.

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Donations and Bequests.—The late Dame Louisa Brandreth Aldrich-Blake left by will, among other bequests, £1000 and all her medical and surgical instruments and appliances to the Elizabeth Garrett Anderson Hospital for Women, Euston-road, N.W.; £1000 to the London (Royal Free Hospital) School of Medicine for Women, for the Endowment Fund; and £1000 to the Royal Free Hospital.—Mr. George Duckworth Atkin, of Lindfield-gardens, bequeathed by will, in addition to other legacies, £105 each to the London Hospital, Charing Cross Hospital, St. Bartholomew's Hospital, the Royal Free Hospital, University College Hospital, the Middlesex Hospital, the Royal Orthopædic Hospital, and the Chelsea Hospital for Women; £52 10s. each to the Royal Eye Hospital, the Poplar Hospital for Accidents, and the Paddington Green Children's Hospital.—Mrs. Emily Topham, of Hunthill, Folkestone, who left estate of the gross value of £247,700, besides other bequests, gave £1000 each to the Westminster Hospital and Dr. Barnardo's Homes, and the ultimate residue, which will amount to about £120,000, equally between the Westminster Hospital, the London Hospital, and St. George's Hospital, in each case for the benefit of diabetic patients, directing that any hospital interfering with the discretion of her trustees or commencing an action to dispute such should forfeit all interest under her will.—Mr. E. Cecil Jones has given £10,000 towards a children's section of the new hospital for Southend-on-Sea as a memorial to his late father, Mr. R. A. Jones. Lord Elveden has given £20,000 and a site of 12 acres.

# Reviews and Notices of Books.

### INFANT WELFARE.

*Modern Methods of Feeding in Infancy and Childhood.* By DONALD PATERSON, M.B., M.R.C.P., and J. FOREST SMITH, M.R.C.P. London: Constable and Co. 1926. Pp. 106. 7s. 6d.

THE latest volume of the Modern Medical Monographs, edited by Prof. H. MacLean, is devoted rather more completely to the feeding of the infant than is indicated by the title. The authors have presented the subject in a scientific and impartial manner, recognising the fact that no type of infant feeding has proved universally successful, and that good results are obtained by a number of different methods. The part played in nutrition by the various components of milk, and the composition of different infant foods, are clearly set out in the first chapter. In dealing with artificial feeding the authors give an account of four methods: whole milk, humanised milk with a single formula, percentage feeding, and simple dilution with addition of carbohydrate. The merits and disadvantages which they have found to be associated with each are indicated; they suggest simple dilution with addition of carbohydrates as the method of choice for the majority of bottle-fed infants. The weight rather than the age of the infant is taken as the indication for weaning, mixed feeding being recommended as soon as the child reaches 15 lb. One of the great merits of this book lies in its recognition of the importance of providing students and practitioners with regimes which are simple enough to be universally practicable; it may be recommended to all who wish to obtain a well-balanced idea of this much discussed subject.

*Diseases of Infants and Children.* By H. D. CHAPIN, M.D., Professor of Diseases of Children, New York Post-Graduate Hospital; and L. T. ROYSTER, M.D., Professor of Pediatrics, University of Virginia. London: Baillière, Tindall and Cox. 1925. Pp. 633. 30s.

THE fifth edition of Chapin and Pisek's text-book has been brought out by Dr. Chapin in collaboration with Dr. Royster. A large part of the book has been rewritten, and much new matter has been added. A considerable portion of the book has been devoted to infant feeding and the diet of children. For artificial feeding of infants the authors favour an extremely low fat content, and are impressed with the advantages of lactic acid milk. An excellent account is given of the infectious fevers, illustrated by some realistic colour-plates. Diseases of the nervous system are treated perhaps too briefly; a few statements are found which will not escape challenge, such as that the movements of chorea are produced by irritation of the Rolandic area. Recent work on the biochemistry of rickets has been included; the authors adhere firmly to the dietetic view of its causation. Some complicated differential diagnoses, such as those of the anæmias and splenic enlargements, are very clearly presented in tabular form.

The book is well illustrated and of convenient size, and may be recommended as an admirable text-book for students and practitioners.

### LOCAL ANÆSTHESIA OF THE FACE AND NECK.

*Lehrbuch der Lokalanästhesie des Ohres, &c.* By Dr. CÆSAR HIRSCH, Chief Surgeon to the Throat, Nose and Ear Department, Marienhospital, Stuttgart. Stuttgart: Ferdinand Enke. 1925. Pp. 203. M.25.

IN this book Dr. Hirsch provides a very thorough account of local anæsthesia as applied to operative work on the ear, eye, nose and accessory sinuses, face, mouth and pharynx, neck, larynx, trachea, and œsophagus. After a preliminary consideration of the object of, and indications for local anæsthesia, and of pain in general, a short history of the subject is given; then follows a full description of cocaine, its chemical constitution, its action, and its pharmacology. Some of the cocaine-substitutes are similarly dealt with, notably, alypin, novocain, psicain, and tutocain; of these the author rightly states that the earlier pronouncements on the safety of alypin have not been justified, but he obtains satisfactory results with all the other four drugs. For surface application to the mucous membranes he finds that potassium sulphate, carbolic acid, and suprarenin all enhance the effect of cocaine, and advises cocaine 8 parts, sulphate of potash (3 per cent. solution) 20 parts, adrenalin (1 in 1000) 10 parts, carbolic acid solution (½ per cent.) to 100 parts, which he states to be equal in potency to a 10 per cent. ordinary solution of cocaine. Phenol also increases the potency of tutocain, while sulphate of potash does not, and a perfect anæsthesia of the larynx is obtained by a 5 per cent. solution of tutocain with adrenalin and phenol; psicain is used similarly in 2 to 4 per cent. solution, while novocain is not considered satisfactory for surface application. For injection novocain is preferred in ¼ to ½ per cent. solution; the solvent solution is made up of sodium chloride 7 parts and potassium sulphate 4 parts, to 1000 parts of water, to which 3 to 5 drops of dilute hydrochloric acid are added to neutralise the absorption of alkali from the glass if the solution has to be kept for a long time. Adrenalin is added in the proportion of 1 drop per cubic centimetre. Tutocain may be similarly employed in half the strength at which novocain is used. Cocaine has been abandoned for injection, and psicain is not mentioned for this purpose; the quinine derivatives are rejected on account of their harmful effects upon the tissues. The greater part of the book is occupied by descriptions of the technique of obtaining local anæsthesia for practically every operation on these regions; these are admirably complete and are profusely illustrated. A good index and a bibliography are provided.

Dr. Hirsch has produced an invaluable and indispensable work of reference on an important subject.

### MIND AND MEDICINE.

By THOMAS W. SALMON, M.D., Professor of Psychiatry, Columbia University. New York: Columbia University Press. Pp. 34. 5s.

THIS short lecture, delivered at the opening session of the College of Physicians and Surgeons at Columbia University, surveys the modern attitude of medicine towards the problems of the mind, and pleads for the impartial recognition of mind, will, and personality as factors equal in importance to the processes of physiology and biochemistry. Dr. Salmon suggests that the physicians of 70 years ago recognised no such cleavage between body and mind as do the pathologists and biologists of to-day, and that the "deadly parallelism" which practically excludes mental disorder from general medical interest springs from the wealth of new methods of investigation, and the resulting attitude that no real functional disorder can exist without an observable structural defect to account for it. There are many able men in this country who hold the same views as Dr. Salmon, and there is every prospect that the problems of mental disease will before long regain the prominence that their importance so urgently demands.

### THE GREAT ABNORMALS.

By THEO. B. HYSLOP, M.D., F.R.S.E., Gaskell Scholar in Psychological Medicine, &c. London: Philip Allan and Co. 1925. Pp. 280. 8s. 6d.

Dr. Hyslop gives a history of some of the great ones of the earth whose mental abnormalities have been disastrous to mankind, of others whose genius was joined to eccentricities that, but for the chance that placed them in other times than ours, would have led to their confinement as insane, and he also describes epidemics of irrational beliefs and behaviour that leave the uncomfortable feeling that perhaps there is no guarantee that civilised man may not relapse into similar error. The vagaries of despots like Ivan the Terrible, the effects of mass suggestion as shown in the Crusades, in witchmania and alchemy, are more interesting than encouraging, and in a chapter on the early history of Bedlam the author reveals his belief that the world outside differs little in its methods and sentiments from the world inside. Studies of visionaries, of whom Swedenborg stands as a type, and of the foibles of men of genius, complete this historical survey. The conclusions to be drawn from the material presented are not clear, but the reader will make acquaintance with a vast range of mental abnormality that has existed without contemporary recognition of its pathological nature.

## JOURNALS.

Journal of Industrial Hygiene. February, 1926.—The use in America of tetraethyl lead in motor spirit to increase its explosive power is said to be introducing a new health hazard. The subject has been investigated by F. B. Flinn, of Columbia University, who experimented on a number of different animals, testing them for skin absorption, and also by exposure to fumes of the fortified spirit. After an exhaustive inquiry, which is reported in detail, he concluded that the lead compounds can be absorbed faster than the lead can be excreted. Definite malaise may occur and prolonged exposure to such risk must constitute a health hazard. He also found that animals absorbed lead from the fumes, and that the effects were obtained more rapidly than by skin absorption. The fortified spirit placed on sale used to contain 1 part of the lead compound to 1000 parts of spirit, but the vendors have already altered the mixture to 1 part in 1300. The whole question has been causing considerable interest in the United States.—Some interesting cases of occupational poisoning by mononitrochlorobenzene are reported by A. Renshaw and G. V. Ashcroft. Four cases were carefully observed in hospital. They exhibited a peculiar slate-grey and cyanotic appearance, and suffered from dyspnœa, collapse, and throbbing in the head; the breath smelt of oil of bitter almonds, and the blood was of a peculiar chocolate colour. Men collapsed after about three days' work, and apparently the poison was absorbed as a vapour through the lungs. The symptoms are ascribed to anoxæmia due to the hæmoglobin of the blood being attacked and to its oxygen-carrying powers being diminished thereby. There was some anæmia due to interference of the function of the bone-marrow.—An account is given by L. Noland, of the organisation of the industrial health department of the Tennessee Coal, Iron, and Railroad Company, which employs some 23,000 persons, and houses them as well. The company embarked upon a health programme in 1913, and now has a staff of seven sanitary inspectors attending to the water-supply, sanitary conveniences, mosquito control, fly protection, food- and milk-supplies, and bath houses of the community. It also has a force of 46 whole-time doctors, who examine all new workers, and men who have been absent for 15 days or more when they resume work. As many as 206,223 patients were treated at dispensaries in 1924; 92,032 calls were made on the homes of the workers, and 26,252 examinations of new or re-employed men were made. There are 14 whole-time dentists, who find it impossible to do all the work brought to them. The company also keeps up a hospital with 310 beds, staffed by 19 physicians dealing with various specialties. Many social activities, such as schools, club houses, and recreation grounds are also maintained. The president of the company considers that, although the yearly expenditure is large, the health department is, nevertheless, a very profitable investment. Labour turnover has been reduced by two-thirds, lost-time is much less, each day's work is more productive, and the workers (paid by the piece) earn more. There is also more contentment and less friction between labour and management.

# Reports and Analytical Records.

## HYPEROL.

(F. W. Berk and Co., 106, Fenchurch-street, E.C. 3.)

Hyperol is known as solid hydrogen peroxide and is prepared by combining hydrogen peroxide and urea in molecular proportions. It is a white crystalline body with the formula $CO(NH_2)_2H_2O_2$. Its stability at ordinary temperatures renders it of particular use in tropical climates. Hyperol is soluble in water, dissociating rapidly in solution with formation of urea and hydrogen peroxide. When analysed the preparation was found to contain 35 per cent. of hydrogen peroxide as compared with the theoretical 36 per cent. A trace of acidity is present, probably derived from citric acid. As an oxidising agent of high efficiency and purity, hyperol will be of use to the medical man and the chemist.

Hyperol is also supplied in the convenient form of tablets, each one containing 8 gr. of 35 per cent. hydrogen peroxide. On analysis these tablets were found to contain 31 per cent. hydrogen peroxide, a little starch used for binding purposes being also present. These tablets will be found convenient as a source of hydrogen peroxide for toilet purposes and some use.

## NESTLÉ'S CREAM.

(Nestlé's and Anglo-Swiss Condensed Milk Co., 6 and 8, Eastcheap, London, E.C. 3.)

This cream, which is described as "pure thick," was contained in a tin the contents of which weighed 11·5 oz. When analysed it was found to have the composition:—

| | Per cent. |
|---|---|
| Fat .. .. .. .. .. | 27·2 |
| Sugar (lactose hydrate) .. .. | 3·4 |
| Protein .. .. .. .. | 3·8 |
| Ash .. .. .. .. .. | 0·4 |
| Water .. .. .. .. | 65·0 |

The total solids were 35 per cent. and the solids-not-fat 7·6 per cent. No preservatives or thickening agents were found. The cream is thick, homogeneous, and has the slightly cooked flavour which is inseparable from pasteurisation, but this is not masked as in some preparations by the addition of cane sugar. The cream can be described as a pure product and this knowledge will doubtless be of use to the practitioner.

## STAPHAR.

(Dick Coates and Co., 41, Great Tower-street, London, E.C. 1.)

This preparation is well known on the continent and has been the subject of satisfactory communications to the *Deutsche Medizinische Wochenschrift*, among other well-known journals. A staphylococcus vaccine, originally prepared by Prof. Strubel, it is recommended in a great many septic conditions of the skin, some of which have features in common such as sycosis, acne, carbuncles, and boils, and in certain forms of eczema and mastitis. The clinical accounts suggest that the use of the vaccine is free from danger in proper dosage and that in suitable cases injection is followed by prompt subsidence of the symptoms. It is supplied in boxes containing three, five, or ten glass sterilised ampoules of 1 c.cm. each, and these should be well shaken before use in order to obtain a uniform emulsion.

## BISTOVOL.

In a communication on the Chemotherapy of Syphilis, published by Prof. Levaditi in The Lancet of Jan. 30th, reference is made to basic acetyloxyaminophenyl arsinate of bismuth. Messrs. May and Baker, Limited, point out to us that this product, in oil suspension, has been placed on the market by their firm under the registered name of "Bistovol."

# LANCET.

*TURDAY, MARCH 13, 1926.*

## NCE OF INTRATHORACIC TUMOURS.

ths in the chest on the increase ?
sion at the Royal Society of Medicine
new growths, reported in our columns,[1]
stion by no means uncommon amongst
blems of medicine. When the recorded
increase markedly in number can
that the particular disease is actually
evalence ? Obviously not. After
has made his necessary *corrections*
ath-rate we are still faced with the
improved methods of diagnosis,
for post-mortem examinations, and
que in laboratory examinations of
ay bring a particular *disease into*
than it has previously attained
approach is not without its pit-
anatomists of the first half of the
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been coincident with the recent epidemic of influenza. The authors also quote facts which throw doubt on the old Schneeberg statistics for carcinoma of the lung. The figures given by HARTING and HESSE in 1878 showed that 79 per cent. of all deaths amongst the miners of the Schneeberg district of Saxony were due to this disease. These returns were, however, not adequately checked by post-mortem examinations, and more recent research has shown the *probability that both pneumono*koniosis and tuberculosis were responsible for many of the so called carcinoma deaths. Research work in other quarters seems to indicate that the older authorities not infrequently confused pneumonokoniosis with new growth. Indeed, the whole question of interpreting the older sets of figures is uncommonly difficult Obviously differential diagnosis is of peculiar importance in this disease, and it would be safe to say that more rapid strides have been made on this *aspect of the* subject than on any other. *Radiology* has doubtless played an important part in this advance. Radiograms of the chest increase in diagnostic value year by year, and the *recent introduction of* lipiodol has added yet another weapon to the armament of the radiologist In his introduction to the discussion at the Royal Society of Medicine, Dr. L. S. T. BURRELL [1] stressed also, amongst other diagnostic points, the importance of the absence of tubercle bacilli in the sputum. We are too apt to assume that a negative sputum test means nothing, whereas in point of fact it may mean a good deal. Yet another common pitfall is the Wassermann reaction. More *than once* it has been our experience to see a *diagnosis* of malignant tumour of the thorax withdrawn on receipt of a positive Wassermann reaction report, only *to find* at the autopsy that *malignant* intrathoracic tumour was the correct diagnosis. The possibility of confusion with aneurysm is obvious, but, after all, *there is no reason why a patient with* malignant disease should not have previously had venereal disease ; indeed, it is possible that syphilis may be a *predisposing* cause of malignant lung, as it is of certain other forms of malignant disease. If, therefore, there are good grounds for the diagnosis of the malignant intrathoracic growth, a positive Wassermann test need not necessarily engender doubts of the original diagnosis. Pyrexia and night sweats, too, are frequently misleading signs. All intrathoracic growths sooner or later become septic from retained secretion and not infrequently this complication may effectively obscure the true picture. The association of pulmonary tuberculosis with carcinoma of the lung was emphasised by Dr. BURRELL in the recent discussion ; it constitutes yet another pitfall. Finally, pleural effusion repeatedly recurring after tapping may mask the usual signs of growths. The difficulties of differential diagnosis are, therefore, many and various, and it is small wonder if, in the absence of the newer aids to diagnosis, these cases are sometimes wrongly diagnosed. The importance of early *diagnosis* was emphasised by *more than one* speaker during the discussion. To wait until unequivocal signs of pressure clinch the diagnosis is to wait until all possibility of surgical aid is past. This disease or group of diseases is, in short, a typical xample of the value of the modern method of team ork Laryngologist, pathologist, *radiologist*, and rgeon can all assist the physician and none of them be safely omitted from the team.

he histological *features of* malignant intratho
ths offer much scope for research, and att

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[1] THE LANCET, Feb. 27th, p. 423.

having been called to the existence of this fund of material it is likely that, in the near future, more results of pathological investigation will be forthcoming. Thus the group of tumours at present designated sarcoma of the mediastinum offers an especially interesting opportunity for research. By reason of their pressure symptoms they are perhaps more commonly diagnosed during life than are the pulmonary carcinomata, and clinically they form a clearly defined group. From the pathologist's point of view, however, they raise all manner of difficult questions. The histological picture is peculiar, so much so that some pathologists are disinclined to admit that they are true sarcomata. The predilection of these tumours for the middle mediastinal group of glands, the two well-defined paths of extension by the deep and superficial lymphatics of the lung causing markedly different pathological pictures, and the liability to track down the walls of the superior vena cava into the right heart, all add to the diversity of the situation. The pulmonary carcinomata vary in naked-eye appearance to such an extent that it is frequently impossible to decide upon their true nature without careful histological examination. Drs. GROVE and KRAMER, in their article quoted above, enumerate five different varieties—viz., infiltrating, multiple nodular, solitary nodular, miliary, and mixed—with a histological picture of cylinder-celled, squamous, or mixed-cell type. Of these, the miliary is admittedly the most difficult to recognise naked-eye, being liable to be confused at first sight with tuberculosis. The point of origin of these tumours is obscure, and this obscurity is rendered greater by the fact that the specimens are not usually obtained early from the operating theatre, but at the end of the course of the disease, from the post-mortem room, when sequelæ and complications have obscured the picture. There would appear, however, to be some evidence for believing that the majority of these tumours arise from the bronchial mucous membrane. One point worthy of special mention is their not infrequent symbiosis with tuberculosis. In some quarters this symbiosis has been adduced as evidence for the view that tuberculosis is a predisposing cause of carcinoma. There are, however, two other possible explanations—viz., (1) the tubercle bacillus may be a terminal infection as it so frequently is in lymphadenoma, or (2) that carcinoma growing in a lung may readily light up a quiescent tuberculous focus. At any rate, with the extreme liability of the lung to become infected with tuberculosis, it is not surprising that *B. tuberculosis* should be found in association with any other pulmonary lesion. Little can be said concerning the ætiology of these malignant intrathoracic growths. The evidence of the arsenic and cobalt miners of Schneeberg, the suggested relationship between pulmonary carcinoma and the recent influenza epidemics, the after-effects of war gases, and the modern practice of tarring roads, all seem too vague and indefinite to be reckoned with as directly causative factors.

There remains the question of benign intrathoracic growths. Here, again, is a subject for research. Hitherto these cases have been described almost as curiosities; very little is known concerning them, and not being directly fatal they only rarely reach the post-mortem table. Routine radiological examinations of the chest in hospital patients would soon elicit the needed facts as to the prevalence and character of this hitherto little recognised group of diseas

# A CHARGE OF NEGLIGENT DIAGNOSIS: THE JUDGE'S OPINION.

WHEN a medical practitioner is sued in the law courts for damages for some negligence towards a patient, the task of deciding whether he was negligent or not is one for the jury and not for the judge. Experienced judges refrain from expressing their personal views except in cases where the administration of justice will otherwise suffer. Exceptional weight, therefore, attaches to the following opinion delivered by Mr. Justice MCCARDIE in the recent action brought by Mrs. VENN against Dr. J. M. TODESCO and Dr. J. ELDER.

> "I myself have formed the conclusion that upon this evidence before the court these defendants ought not to be found guilty of negligence. I further feel, if one weighs the documents and the whole of the testimony in this case, that if a doctor were to be found guilty of negligence upon such evidence as that before us, then no doctor would be safe."

The learned judge made these striking observations with the knowledge that this was the second of two protracted trials, and that, after a hearing of several days and before the case for the defendants was fully developed, the jury had intimated to him that eleven of them were in favour of a verdict for the defence, while only one was in favour of a verdict for the plaintiff. After this intimation, counsel for the plaintiff having declined to accept a majority verdict, the case proceeded to a finish two days later with the negative result that the jury still disagreed in the same proportion as before. The trial was therefore abortive and the case goes back into the list for yet another hearing. There remains also a point of law to be argued whereon the defendant doctors may be held relieved from liability by virtue of the Public Authorities Protection Act; but there was a hint that the legal authorities are here in conflict and that the point may require decision in the House of Lords. When it is added that the plaintiff Mrs. VENN—for whom in the loss of her husband everyone will feel sympathy—is suing under the Poor Prisoners Rules, and that her solicitor and leading and junior counsel are giving their services without the ordinary reward, the position of Dr. TODESCO and Dr. ELDER is seen to be unenviable. They are put to heavy expense in the necessary defence of their professional reputation, and they will not recover one penny of their costs when they succeed in that endeavour.

The circumstances of the case may be briefly outlined. Mrs. VENN's husband, 60 years of age, was removed to Croydon Borough Hospital on March 18th, 1922, on the advice of his medical attendant, Dr. E. G. D. MILSOM. He had then been suffering for at least three weeks from scarlet fever. It turned out that he suffered from diphtheria as well; at any rate, both those diseases were notified. He gradually made progress towards recovery from them, but on April 26th he underwent an operation for a deep-seated abscess in the hip. Blood poisoning set in and he died on June 15th. Legal proceedings were begun in the following December. His widow complained that there had been negligent delay of between six and seven weeks at the isolation hospital before Dr. R. V. CLARK (the medical superintendent) examined him, and that Dr. TODESCO (resident medical superintendent at the hospital) and Dr. ELDER (then assistant resident medical officer) were negligent in not properly diagnosing the abscess. The claim came before the Lord Chief Justice and a special jury last June. There was a definite verdict in favour of Dr. CLARK, but the jury disagreed, as they have now disagreed again, as to the liability of his two colleagues. Much of the medical history of the case was undisputed; Mr. Justice MCCARDIE commented more than once upon the care and fairness with which the medical evidence was given; the case for the defence was supported, as he observed, with an exceptional quantity of contemporary documents—the admission card with unusual details, the temperature chart with unusual details, and the nurse's reports, while the entries were made at a time when there was no conceivable motive for falsification. The disputed matters were mainly the following. There was an entirely honest doubt whether the information given by Mr. VENN's original adviser, Dr. MILSOM, when the patient was brought to the hospital, really reached the hospital staff. Dr. MILSOM spoke of deep-seated inflammation, but said he never used the word abscess. Mrs. VENN and her son stated that Dr. MILSOM used the word and that the hospital doctors were so informed. Mrs. VENN alleged that her husband's thigh and hip were swollen in great lumps, the inference being that the body was septic at an early stage of his stay in hospital and that the abscess should then have been diagnosed and treated. The hospital doctors' evidence, the nurse's reports, and the temperature chart negatived this; the deceased had attributed pain and tenderness to rheumatism. The case, as already stated, was a charge of diagnosing too late the existence of the abscess, and Mr. JUSTICE MCCARDIE in summing up made some remarks on diagnosis which should be widely read

> "A doctor," he said, "must show and exert towards the patient reasonable skill and reasonable care. In the medical profession, as in other professions, there are men of different gifts—for example, in surgery there is the man who possesses singular powers of insight, great operative capacity, and who gains a world-wide reputation. There is, on the other hand, the man who possesses ordinary gifts, ordinary skill, and the ordinary capacity for care That is the standard that must be applied. .. Difficult though diagnosis is with respect to many matters, there is no matter with respect to which it is so difficult as with regard to a deep-seated abscess ... It is not negligence for one doctor, competent and careful, to form one opinion, and another man, as competent and careful, to form another opinion. In fact, in my view, it is the duty of a medical man .. to form his own opinion honestly and to the best of his ability, and, having formed his opinion, to express it. The professional man who fails in that fails, in my view, in his duty as much as a judge who, having formed an opinion of the case, lacks the courage to express it."

It might be improper to comment upon the evidence in a matter which in a sense is still sub judice, but there can be no objection to repeating the judge's opinion.

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# THE STERILISATION OF MENTAL DEFECTIVES.

RECENT correspondence in the *Times* (Jan. 18th and 20th) and a leading article in *Nature* (Feb. 20th) have raised again the question whether it is better to prevent the feeble-minded having children by segregating them under control in institutions or by sterilising them. If the prevention of their reproduction were the only pertinent consideration the advocates of sterilisation have a strong case. It is not clear whether the proposal is to de-sex by castration or simply to prevent reproduction by dividing the vasa or tubes; by either method, however, the desired result is achieved with relatively little trouble and at far less cost than by institutional segregation. But, in fact, we have every reason to believe that to make obvious defectives infertile is only a partial solution of the problem of prevention. "Mental deficiency" is a relative term and difficult, perhaps impossible, to define. But the condition is heritable whether we regard it as a definite character like albinism or as the end term of a series which ranges from clever, through normal and stupid, to a state which is hardly compatible with modern society. Mendelians have satisfied themselves that feeble-mindedness is a unit character and a recessive; Prof. KARL PEARSON concludes that intelligence is a congenital product. Whether the two interpretations are as inconsistent as they may seem at first sight? Whether we are, as appears extremely likely, lumping together a variety of different conditions which are transmitted in ways which are for practical purposes different? What is the position of borderline cases—these and many other questions of the greatest hygienic importance will be left for future solution. Proceeding, however, as we must on what we know rather than on what we do not know, it is really essential that SIR ARBUTHNOT LANE and his colleagues who advocate sterilisation as a "rapid" method of diminishing the numbers of defectives should study further the mode of inheritance of a recessive character.

If the proportion of actual defectives in the population is about 3 per 1000, it is reckoned that about 7 per cent of people will be unsuspected carriers of feeble-mindedness. The mating of two such apparently normal carriers will give one defective child in four, and half the children will again be carriers; one in four will be really normal. If a carrier mates with a normal there will be no defective children but half the family will be carriers. These carriers cannot be identified except by the children they produce with an appropriate mate. Hence the apparent paradox that the proportion of cases of mental defect which are the offspring of actually defective parents is quite small; the majority are the children of people who are apparently quite normal. These facts have been related over and over again; Prof. *RUGGLES GATES puts the case very clearly in his* "Heredity and Eugenics," and it is stated particularly plainly in a letter from Dr. W. M. FELDMAN.[1] Prof. R. C. PUNNETT calculated nearly ten years ago that it would take about 8000 years to reduce the percentage of feeble-minded in the population from 3 per 1000 to 1 in 100,000 by segregating or sterilising those who are themselves feeble-minded. Those who purpose to start any popular movement in favour of sterilisation are in fairness bound to warn the public that they must not expect to see much difference for some time. A character is not necessarily controllable because it is heritable any more than an infectious disease disappears as soon as its parasite is discovered.

But there is no reason why we should not achieve what we can in the way of preventing mental deficiency, and everyone will agree that defectives should not be allowed to breed. The fact, however, that it is only a little which can be done in this way makes one realise that this particular line of attack deals with what is, in a practical world, only a minor part of the whole problem. Those who advocate sterilisation seem to think that nothing but prevention of multiplication is necessary or desirable. But people in general dislike defectives, not because they are apt to produce defectives, but because they are defectives. The village idiot has become repulsive, and hardly anyone will seriously doubt that it is a cruel thing to leave the grosser examples of feeble-mindedness in a world for which they are quite unfitted; it is bad for them and bad for the world, especially for the child world which has not learned what they are. Sterilisation would make them no more fit to be at large; inability to procreate or bear children will not abolish the secondary sexual passions nor will de-sexing save the women from the vileness in every man to which the feeble-minded are such an easy prey. In rougher times defectives were destroyed; they have long been tolerated; the progress of kindliness now requires that they should be taken better care of, and we hope that the county councils will accelerate the provision which is being made for their segregation. Segregation is so desirable that it may be reasonably called necessary; sterilisation is therefore otiose.

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[1] *Brit. Med. Jour.*, 1924, i, 766.

# Annotations.

"Ne quid nimis."

## UNIVERSITY REFORM IN LONDON.[1]

FOR those who have and those who have not studied the difficulties to which the University of London has been ever subjected, a volume entitled "University Reform in London," by Mr. T. L. Humberstone, which includes chapters that have already appeared in the *Times*, the *Journal of Education*, and elsewhere, makes interesting reading. For those who have had occasion to watch the various controversies as they developed the book will have its pathetic side, when it is recognised that voluminous discussions, in which men lost their temper as well as the general thread of the debate, can be fairly reduced in a detailed history to a few lines of summary. This is not to say that Mr. Humberstone's story takes the place, for those who want a fully detailed record, of the writings of Sir William Allchin, the reports of various Commissions, and the plenteous serial literature which was topical at the different dates; but this small volume does enable us to see clearly why and how many of the large and bitter divergencies of opinion have arisen.

The attempt to reconcile the ideals of an Imperial examining board with those of a teaching university has been the origin of many schemes during the last 75 years, resulting in proposals for the creation of five or more separate universities, or at any rate of institutions having the right to grant degrees; and all of these various movements have been due to the firm belief of their sponsors that only in their particular way could wisdom be advanced and particular sections of students obtain their best chance. The part that medicine has played in the controversies has been significant, because a faculty of medicine cannot be imagined which takes into consideration only an examining board and not the schools where instruction is given. Again, the fact that, while the metropolis contains a group of the finest medical schools in the world, the university of the metropolis does not offer the students opportunities of graduation comparable to those obtaining elsewhere has needed constant recollection; we may all know the pros and cons of this situation, and how far it has recently undergone modification, without feeling that the inequalities have been removed. The medical aspect of the affairs of London University is not, however, any special feature of Mr. Humberstone's book, though he is clearly aware of the position while discussing the Selborne, the Gresham, and the Haldane Commissions. A particularly interesting chapter makes the complicated episode of the Imperial College of Science and Technology comprehensible, and this is followed by a setting out of the arguments for a single university for London with a summary of recent work under the present charter.

On the vexed question of a central site, Mr. Humberstone has no doubts; he is in favour of the placing of the university on the Bloomsbury site where the area available could be profitably used "for administrative buildings, halls, libraries, headquarters for University societies, and for the Officers' Training Corps, for residential hotels and for numerous social, athletic, and extra-academic purposes, as well as for a group of schools and institutes for research and special subjects, such as a school of law, a school of journalism, a school of military studies, research institutes for comparative pathology and numerous arts, sciences, and professional subjects." The various advantages of the Bloomsbury site are set out presumably as a rejoinder to those who object to this departure, and it is a fair criticism of a valuable piece of work that neither is the formidable nature of the objections dealt with, nor is there any full rejoinder to those who desire to remain in Kensington.

## RESPIRATION AND ANÆSTHESIA.

THE more that the physiology of anæsthesia is studied the more striking becomes the predominance of the part played in the process of narcosis by respiration. Indeed, the physiology of respiration may be said to dominate the physiology of anæsthesia, and all else to be subservient to the part played by the respiratory current and its resultant effects on the composition and the circulation of the blood. The overwhelming part played by respiration in both the induction and the maintenance of inhalation anæsthesia is, or should be, as obvious to the practising anæsthetist as it is to the worker in the physiological laboratory. Nevertheless there has certainly been a tendency for his attention to be drawn too much to other subsidiary phenomena—blood pressure, for example, or the state of the eye—and too little riveted on what is actually the key to the whole problem—the breathing. It is true, of course, that mechanical obstructions to respiration have received due attention, and indeed the importance of evading obstructive swelling and spasm of the upper air passages was a fundamental doctrine of the teaching of the late Sir Frederic Hewitt. The less obvious defects of respiration, however, and their direct influence upon the patient's condition were undetected or little understood, and it is to physiological work that we owe an advance in knowledge of these practically most important matters. When the physiologist and the anæsthetist are allied in work of investigation the results are likely to be both interesting scientifically and valuable in practice. The paper read recently by Prof. M. S. Pembrey in conjunction with Dr. F. E. Shipway is a case in point. Prof. Pembrey's observations on apnœa are enlightening, while his insistence on the rôle of carbon dioxide as the paramount respiratory stimulant is paralleled on the clinical side by cases that Dr. Shipway quotes to show how the breathing may be brought to an end in practice by the free washing out of that gas. Apnœa is most likely to arise during the anæsthesia produced by intratracheal insufflation. Pembrey records a case in which 16 litres of air per minute sufficed to oxygenate the blood, but 30 litres produced apnœa for a period of two minutes. The blood pressure fell during the period of rapid lung ventilation. During the period of apnœa it gradually rose, and as the tension of carbon dioxide in the blood increased the patient began slowly to breathe again. Another form of anæsthesia which may be associated with apnœa is that due to "gas and oxygen" breathed through valves over considerable periods of time. The acapnia which may be thus instituted is shown by pallor, a cold, clammy skin, feeble breathing and a quickened pulse, and is in striking contrast to the full colour, exaggerated respiratory movements, and full pulse that are brought on by the presence of carbon dioxide in excess. Both these types of cyanosis are not uncommonly seen clinically, and their essential difference has to be appreciated by the practical anæsthetist. It is around the function of carbonic acid gas in the lungs and in the blood that the chief recent contributions to the physiology of anæsthesia have arisen. Starting from Haldane's original demonstrations of the significance and relations of the volume of air breathed, workers, among whom are prominent Yandell Henderson, H. W. Haggard, and S. R. Wilson, have arrived at important truths concerning respiration in anæsthesia which had hitherto not been made plain. The practical application of these truths lies in the suggestion that by due use of $CO_2$ in induction the respiration may be so stimulated that with exaggerated ventilation of the lungs a large supply of anæsthetic at the safe concentration may be rapidly inhaled. In this way the concentration of anæsthetic in the nerve centres necessary for anæsthesia may be rapidly and safely reached. The other practical use of $CO_2$ is at the close of anæsthesia when again, by inducing vigorous respiration, the anæsthetic may be rapidly washed out of the blood and lungs, and recovery be expedited with consequent diminution of after-effects. With regard to the first of these two practical propositions there is an objection that arises in practice which is not apparent in the laboratory. This depends on the sensations of the patient. Anyone who has experienced the sensation of entering anæsthesia with nitrous oxide or with ether through the medium of forced breathing will assert that he has no desire to repeat the experience. There is no doubt that the physiological method is safe and certain, but it is extremely uncomfortable as compared with a more gradual induction. Moreover, although so far with ether it has appeared safe, there is the general principle to be borne in mind that sudden changes of bodily conditions are, generally speaking, inadvisable as compared with gradual changes. Medicine provides numerous examples which show that a particular condition may be harmless if gradually reached, dangerous if suddenly instituted; and it is not unlikely that anæsthesia complies with this general rule. So far as we are aware the experiment has not been made of rushing a patient into chloroform anæsthesia by exaggerated inhalation of a safe percentage vapour, and we are inclined to doubt the wisdom of making the experiment. The value of forced breathing to rid the body of the inhaled anæsthetic is another matter and appears to be a most valuable addition to the anæsthetist's powers to avoid deleterious results from his administration. It is obvious that so efficient a weapon as carbon dioxide needs careful handling, and scrupulous control must be exercised of the percentage vapour administered after anæsthesia. The proper percentage in oxygen appears to be about 7. The disadvantage of employing the obvious and most simple means of supplying $CO_2$—namely, by making the patient re-breathe his own expirations—is that these must contain a considerable amount of the very anæsthetic vapour which is to be expelled. The necessity for carrying yet another cumbrous cylinder, containing the required percentage of $CO_2$ in oxygen, may be avoided, as Dr. I. W. Magill has pointed out in our columns, by the use of sparklet bulbs.

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[1] By Thomas Lloyd Humberstone, B.Sc. Lond., Associate of the Royal College of Science, London; late Mitchell Student of the University of London. With an introduction by H. G. Wells. London: George Allen and Unwin, Ltd. 1926. Pp. 192. 7s. [illegible]

## RATE-AIDED HOSPITALS.

Some remarkably interesting particulars of the extent to which hospital accommodation is provided or aided by local authorities were recently given by the Minister of Health in answer to a Parliamentary question. Mr. Chamberlain stated that there is only one large general hospital provided by a local authority. He did not mention its name, but he was obviously referring to the City of Bradford Municipal General Hospital, with its 750 beds. Add to this three relatively small accident hospitals and the number of general institutions so provided is exhausted. There is no official information on the number of cases in which voluntary hospitals are municipally aided apart from services rendered to the municipality, but before long they will probably reach a respectable total. By last year's Public Health Act, which has been in operation only six months, local authorities have power to help voluntary hospitals to the extent of a penny rate, but it has as yet been very little exercised. Municipal hospital activities of a statutory character have now become very extensive. Thus, there are 158 tuberculosis hospitals with nearly 11,000 beds; 1010 hospitals for acute infectious diseases with approximately 37,700 beds; 68 maternity institutions with 908 beds, not including maternity wards in general and Poor-law hospitals; and a dozen babies' hospitals with 200 beds. The tens of thousands of beds in the infectious diseases hospitals include 2230 for the treatment of tuberculosis. A large number of voluntary hospitals receive payments from the rates in return for services rendered in connexion with tuberculosis, venereal diseases, maternity, and child welfare schemes. For tuberculosis there are 153, and for venereal diseases 130 hospitals which provide beds as and when they are required, and for maternity and child welfare a dozen hospitals provide 175 beds. In this category there are 127 special tuberculosis hospitals with 8563 beds, 52 maternity institutions with 917 beds, and 12 babies' hospitals with 334 beds. These figures are exclusive of accommodation in homes for unmarried mothers and their babies, observation wards in connexion with maternity and child welfare schemes, and convalescent homes. The Poor-law authorities provide 64 institutions, with 35,250 beds, wholly for the sick, exclusive of institutions for mental cases, and 590 mixed institutions capable of housing 180,000 persons, with 79,000 beds for the sick. If, and when, the councils take over the functions of the boards of guardians, they will thus receive an enormous addition to their public health responsibilities. Meanwhile, these figures add greatly to the strength of the case for the coördination of official health services.

## A GERMAN VIEW OF NICOTINE.

The third and fourth parts of the seventh volume of "Ergebnisse der gesamten Medizin,"[1] which is appearing in instalments under the general direction of Prof. T Brugsch, contain articles on subjects as diverse as the diagnosis and treatment of cancer, the radiological diagnosis of gastric and duodenal ulcers, ankylostomiasis, tetany, the nervous child, suggestion and auto-suggestion, and the adrenal blood reactions. In an article on Nicotinism Prof. Heinrich Kionka presents a summary of existing knowledge on the effects of tobacco and their treatment. Nicotine, he states, exists in tobacco in quantity varying from 1 to 8 8 per cent, while in France, where the plants are set wide apart, the percentage may reach 6. Few people, he thinks, realise what a deadly poison this alkaloid is; one drop of the fluid preparation is fatal to a dog and nearly so to a man. Its action on the nerve centres is violent stimulation quickly followed by paralysis; function is accelerated for the time, and unstriped muscle is stimulated by the over-secretion of adrenalin. It is partly this tonic effect that makes tobacco so universally desired, and partly the assistance which it gives to digestion by making all the glands secrete more copiously. The sedative effect he attributes to carbon monoxide rather than to nicotine. This, it is stated, is present in tobacco-smoke in startling quantities, and is the real cause of most of the symptoms of the non-smoker who feels unwell when surrounded by eager devotees in a railway compartment or unventilated room. The reason why nicotine does not do more harm amongst smokers is, of course, that tolerance is easily acquired, and though the beginner shows signs of poisoning at once, he soon becomes immune. Nevertheless, the limits of this tolerance are easily passed, and, according to Prof. Kionka, the inveterate smoker who oversteps the mark suffers far more than the beginner, for his tissues are more or less saturated and he has less resilience. The quantity of nicotine present in tobacco-smoke varies considerably. The content in the leaf is said to be unexpectedly independent of the strength of the tobacco. Whereas with Dixon's apparatus 100 g. of light cigars gave up 1000 mg. of nicotine, compared with 480 mg. yielded by the same weight of strong cigars, two German brands of so-called nicotine-free cigars gave 420 and 320 mg. respectively. The quantity the smoker actually absorbs varies with the capacity of the cigar, cigarette, or pipe for distilling and trapping the nicotine from the burning tobacco. A long pipe is better than a short one, a dry cigar than a damp one, and the first half of any smoke does much less harm than the last. The cigarette, says Prof. Kionka, is the worst of all, for its paper covering collects the products of distillation, which are revapourised and absorbed as the cigarette burns down to the end. The smoker who re-lights a pipe or cigar, it is stated, probably absorbs more poison than he would from ten straightforward smokes, whilst chewing and snuff-taking are regarded as not nearly so harmful as smoking, because only a little nicotine is absorbed. There is hardly a single pathological condition, Prof. Kionka says, that tobacco cannot cause or aggravate. It sets up sclerotic and necrotic changes in the heart and large vessels, causes colour-blindness and scotoma, damages the hearing by causing swelling and congestion in the inner ear, and, in specially disposed subjects, will produce a toxic psychosis or any of the minor psychic and nervous troubles that go with cumulative poisoning of the sympathetic system. Like all other habit-forming drugs, he continues, it produces worse effects when it is a psychological factor. The ordinary man smokes because he likes it and cuts down his consumption when he has the familiar symptoms of over-smoking, but the nervous man who uses it to tone his nerves up for brain-work, when he should have learned to control them otherwise, may find himself in a bad way. Provided the poisoning has not continued so long that there are organic changes, says Prof. Kionka, the damage in all cases of chronic nicotinism is largely reparable by stopping all tobacco and purging the system by a course of exercise, baths, and medicine. Iodide of potash is also useful. If nicotine is harmful to adults, he concludes, it is deadly to adolescents, and most civilised countries enforce stringent laws against smoking by young people.

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[1] Ergebnisse der gesamten Medizin. Siebenter Band. Berlin und Wien: Urban und Schwarzenberg. 1925.

## THE HEALTH OF THE MAORI.

Last year a series of articles appeared in the *Evening Post* of Wellington, New Zealand, on various aspects of public health activities. These attracted some attention, and the Dominion Department of Health decided to republish them in booklet form under the title of " Striking Facts and Figures " for the information of the general public. The articles are a form of official propaganda and fulfil this purpose well, although unsigned. New Zealand does not appear to admit the claim that to be attractive to the public an article on health must be signed with a famous name. The health of New Zealand has of recent years frequently been held up as an example to other nations. Of the health of the native population little is heard, and it might, perhaps, be thought that this was not so much a subject for pride. Such an idea is, however, shown to be erroneous by the final article which treats of Maori hygiene. Although at first in the hands of the Native Department, in 1901 certain important changes took place, and amongst them was the appointment of Dr. (now Sir Maui) Pomare, the first native graduate in medicine, as medical officer of health under the Health Department. He set in motion at once sanitary reforms among the Maori population which have negatived the pessimistic prediction of the extinction of this fine race. Soon after Dr. Pomare's appointment nine Maori sanitary inspectors began their work, and in 1905 another Maori health officer, Dr. Te Rangi Hiroa, was appointed to assist Dr. Pomare. There are now over 20 native health nurses at work in the more populous Maori districts, lecturing to the women on the feeding of infants, the care of the sick, and other practical matters. Pamphlets in the native language have been prepared on the feeding of infants, tuberculosis, typhoid, influenza, scabies, among other subjects, and there is a good demand for them. Not mentioned in the booklet is the remarkably low death-rate from cancer among the Maori community discovered by Mr. J. W. Butcher in a statistical study to which attention will later be called. Linked up with preventive work is a certain amount of anthropological research. The social and physical improvement that has taken place since 1900 is attributed to the various measures thus briefly set out. Sir Maui Pomare is now Minister of Health in the New Zealand cabinet, Dr. Hiroa is director of Maori hygiene, and the rescue from extinction of one of the finest races in the world substantiates New Zealand's claim to have a sensitive health conscience.

## THE PREVENTION OF POST-MORTEM INFECTIONS.

We have been sadly reminded in the opening weeks of this year that post-mortem examinations are not without risk to those engaged in this branch of professional work, for two pathologists have recently died as the direct result of infected fingers due to minor injuries received in the course of a routine autopsy. The gravity of the position cannot be correctly gauged from sensational headlines of the lay press in such cases, nor does it seem possible at the moment to arrive at accurate statistical information of the incidence of infections following post-mortem examinations. The Registrar-General rarely reports more than one death per million in any year from all the injuries due to cutting or piercing instruments. In view of the very large number of autopsies performed annually, there can be little doubt that disaster follows in an extremely small proportion of cases. Indeed, this is so well recognised in the profession that a feeling of false security is engendered, and small injuries are regarded of no moment. Even if the accident is recognised as potentially serious, there seems to be uncertainty as to what prophylactic measures should be adopted. Among those who work in the pathological departments of the big metropolitan and provincial hospitals familiarity is apt to breed contempt, and often insufficient care is taken to provide facilities for protection and for prompt and adequate treatment. Moreover, any medical man in practice is liable to be called on to perform an autopsy, though he may have but little experience in the technique. Therefore, we commend to the serious attention of all our readers the analysis of the causes of post-mortem injuries and advice as to their prevention, which forms the subject of this week's article in the Modern Technique in Treatment series.

## MORBID CHANGES IN PELLAGRA.

Opportunities for the careful post-mortem examination of the subjects of pellagra are rare in this country. Such an opportunity in the shape of the death of two patients, one suffering from undoubted pellagra and the second a probable case, presenting itself at the Royal Hospital, Edinburgh, has enabled Dr. William Susman, working with a Hoffman Scholarship from the Queen's University, Canada, to make a very full and complete report[1] upon the pathological changes in this condition. Dr. Susman finds the oldest and most pronounced lesions in the thyroid gland which shows proliferation of the vesicular epithelium into the vesicles together with fibrosis and a generalised round-celled infiltration, indicating the spread of a toxic product by the lymphatics. Other organs also showing evidence of irritation by some toxic product are the liver, kidneys, and pancreas. The liver is markedly affected, the irritative process resulting in a fibrosis. In the pancreas the degenerative process affects principally the zymogen cells; the islets of Langerhans are numerous and large, and the cells contain many alpha granules; many of the islets give evidence of damage in the shape of hæmorrhages. The kidneys show peritubular degeneration and fibrosis which, in the opinion of the author, indicates that the causative toxic product is excreted through these organs. The spinal cord shows a degeneration of the dorso-spino-cerebellar tract of a type similar to that described some years ago by Batten and Sandwith. Examination of the fæces by section failed to reveal the presence of amœbæ and presumably, since no mention is made of them, of all other varieties of protozoan parasites. No suggestions as to the origin or nature of the toxic product giving rise to the lesions described are hazarded by the author.

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[1] Edinburgh Medical Journal, February, 1926, p. 58.

## AN INSTITUTE OF BIOCHEMISTRY AT THE MIDDLESEX HOSPITAL.

Mr. S. A. Courtauld has given £30,000 to the Middlesex Hospital for the erection, in connexion with the medical school, of the Courtauld Institute of Biochemistry, and the plans provide for a new seven-storey building to be erected on a site adjacent to the premises of the medical school. The Institute is designed to be a complete department of medical chemistry, where the most recent methods in diagnosis can be considered for application to the patients of the hospital, while the research work will be directed to the elucidation of problems in physiological and pathological chemistry, and the preparation of chemical substances which suggest themselves of value in treatment. Full facilities will be provided for the instruction of students in biochemistry. The new Institute will work in close association with the Bland-Sutton Institute of Pathology. In 1921 Mr. Courtauld endowed the Chair of Anatomy at the Middlesex Hospital Medical School with a sum of £20,000, so that his gifts for medical education and research, apart from donations for hospital maintenance and reconstruction, amount to £50,000. His latest gift is a striking illustration of breadth of vision, for the possible developments of biochemistry as the ally of medicine are of the utmost promise. Clinical medicine is continually annexing subsidiary sciences to help in the elucidation of its problems. The first was anatomy, normal and morbid, the science of direct observation of the gross structure of the body. This was followed by the study of function in health and disease, and still later the fruits of microscopical observation were enlisted. To-day exact information as to the chemistry, not only of natural products but of physiological and pathological processes, is felt to be the great need of modern medicine. Biochemistry has become so wide as to need subdivision, with the result that while some laboratories work only on abstract problems with no direct clinical or commercial application, others are devoted to the study of physiological processes. A comparatively small body of workers in this country are attacking the clinical applications of biochemistry, and these for the most part are clinicians with special scientific attainments rather than chemists profoundly interested in medicine. Mr. Courtauld's generous gift is intended to found an Institute embracing all branches of biochemistry, but with a general trend towards the study of clinical conditions. Since the new Institute will be responsible for all the chemical routine work of the hospital, the workers will be in intimate touch with the patients. Under the direction of Prof. E. C. Dodds there is little fear that the therapeutic aspect of the work will be neglected, for he has long given practical proofs of his interest in the clinical application of his researches. All branches of biochemistry will be studied in the new Institute—the pure chemistry of natural products, physiological and pathological chemistry, together with the routine work. In addition to clinical facilities, the workers will have the benefit of collaboration with the Bland-Sutton Institute of Pathology, and it is proposed that chemotherapeutic researches shall be started by the two departments working in close association.

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KING EDWARD'S HOSPITAL FUND FOR LONDON.—Hospitals desiring to receive grants from this Fund for 1926 must make application before March 31st to the hon. secretaries of the Fund, 7, Walbrook, E.C. 1. Such hospitals must be in the county of London or within 11 miles of St. Paul's. Applications will also be considered from convalescent homes which are situated within these boundaries or which take a large proportion of patients from London.

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# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLXIV.—THE TREATMENT OF POST-MORTEM INFECTIONS.

POST-MORTEM injuries are usually trivial; it is rarely that a wound of any considerable size is seen. They may be punctures, scratches, or incised wounds, and occur most frequently in the terminal segments of the left index and middle finger, and on the ulnar border and the posterior surface of the forearms and hands. It is instructive to analyse how these post-mortem injuries usually occur.

The *puncture wounds* of the left index and middle fingers may be produced by a prick of the knife point, and appear to happen principally during (1) the removal of the tongue and fauces from the mouth through the mid-line incision in the neck; (2) the mobilisation of the liver and its separation from the diaphragm; (3) the en bloc removal of the contents of the pelvis. They may occur also during the investigation of some morbid condition involving bone—e.g., an aneurysm of the arch of the aorta eroding the bodies of the dorsal vertebræ, a chronic bone infection, or a growth of bone. Small spicules may be lying loose in a cavity or may project from the surface, and being unpleasantly sharp may have punctured the finger before any danger is anticipated. Similarly, the finger may be pricked by the jagged edges of carious teeth.

There is another way in which the knife may cause trouble. While the viscera are still in situ but exposed, an occasion sometimes arises when both hands are needed (e.g., the stripping of an adherent pleura to mobilise the lung) and the knife is placed, not on the table, but among the intestines, between the coils of which it sinks to ambush. Later comes the exploration of the abdominal contents and the knife recalls its existence by stabbing the examining finger. Few pathologists will admit that they have been guilty of such wanton carelessness, but many declare that they have seen other workers lose sight of a knife in this way.

Pricks from needles are rarely seen among post-mortem workers, who use needles almost exclusively for suturing the skin incision, and employ large, easily handled ones. Yet I am informed that pricks of the two fingers do occur, possibly because by that time the interest of the case has lapsed, and the suturing is an irksome task to be completed as soon as may be. The post-mortem operator—unlike his surgical colleague—does not use dissecting forceps to assist his suturing, but steadies the skin with the fingers of his left hand, and it is thus easy to understand how a tired worker may inadvertently prick his finger. A curious example of needle injury, from which no untoward consequence resulted, is that suffered by a pathologist during an autopsy on a man who had died on the operating table. Amongst other restoratives applied had been direct injection of a stimulant into the heart, during which process the needle was snapped off short in the body; at the autopsy the pathologist pricked his finger on the buried fragment.

*Scratches* are produced mainly in one way. The thorax cavity is exposed by dividing the costal cartilages on each side near the costo-chondral junction, or the ribs are sawn through further out. Often adherent lungs demand the introduction of the hand and forearm into the thoracic cavity, and it is during this manœuvre that the skin is liable to be scratched by the projecting ribs or rib cartilages.

*Incised wounds* by the knife are rare and can generally be avoided by the experienced worker.

*Surgical Injuries.*—Injuries received during the course of a surgical operation are in many ways similar to the post-mortem ones. They are inflicted by knives, needles, and bone spicules, and are probably far commoner than in the post-mortem room, but so many operation cases are "clean" ones, and the surgeon's hands have been so thoroughly prepared, that the probabilities of infections following are greatly diminished. Nevertheless, they should be treated with the same respect, and the whole process of prophylactic treatment gone through, for it is not always possible to decide when an operation case is infected or not.

*Bacteriology.*—The vast majority of causative organisms in these conditions are the pyogenic cocci. Theoretically there are many others, but actually few cases will be seen that are the result of anything but staphylococci or streptococci, and of these the latter is infinitely the more serious. The fulminating types of lymphangitis are a virulent streptococcal infection, and though a staphylococcus may give widespread and dangerous trouble locally, it rarely gives a septicæmia unless the treatment has been grossly at fault. It is worth taking a swab when a septic finger or hand is opened, for it does help to form some idea of the prognosis of the case, and, moreover, an autogenous vaccine may be prepared for use if it is thought desirable.

### *The Prevention of Injury.*

Methods of preventing accidental injuries fall into three groups: (1) adequate protection, (2) proper technique, and (3) reasonable care.

*Adequate protection* is essentially a matter of suitable clothing. Even in big institutions protection is often insufficient, and among those who do only occasional autopsies the main idea often is to safeguard the clothes and not the skin. The proper apparel is as follows: First a mackintosh; over this a long-sleeved overall with elastic bands at the cuffs. The ordinary type of operating gown serves admirably, and, in fact, in many hospitals pathologists' overalls are made to the same pattern, but of a different coloured material to avoid confusion at the laundry. Next, gloves must be worn; a totally unjustifiable risk is run if they are omitted. They should be of the gauntlet type, and the best variety is that which combines fine roughened hands with coarse rubber for the forearm extension, which should reach nearly to the elbow; further, the cuffs of the gown must fit snugly to the gloves at the wrist. A pair of cotton gloves over the rubber ones are useful protectives, for surgery on the living has taught us how consistently these deflect spicules of bone and so prevent the perforation of the rubber beneath. In this way the sense of touch is not too seriously impaired, while adequate protection is ensured.

*Technique.*—The surgeon develops a well-devised technique from long experience, his main object being to preserve the safety of the patient. The post-mortem subject having passed beyond the need of such care, the operator should consider his own safety. It would be out of place here to dwell on the methods of conducting a post-mortem examination, and I will consider the technique only as far as the handling of instruments is concerned. Surgeons visiting the post-mortem room are often amazed at the casual way of the pathologist with his instruments. These are usually to be seen on the table beside the body, probably to end by slithering into the groove between table and body, where in due course they will be covered by some of the removed viscera. Attention has already been directed to the habit of laying knives on the body. As so very few instruments are needed a very simple working scheme should suffice. A small table, comparable to a bed table, astride the body, with sufficient clearance to avoid the thighs, might be used for instruments. Similarly, during the examination of the removed viscera an instrument tray should be used. Mention has been made of the part played by the divided ribs or costal cartilages in scratching hands and forearms. The method usually adopted is to fold the musculo-cutaneous flap raised from the sternum and chest wall over the projecting ribs so that these are hidden from view. It seems that in many cases the division of the costal cartilages cramps the worker for room rather seriously, and it would probably be much wiser to saw the ribs through further out as a routine procedure. Lastly, to avoid needle pricks during sewing up, dissecting forceps should be used. It may be said that to those without constant practice suturing already takes a long time; but after all, the pathologist has only to sew up reasonably neatly and he need not bother about accurate co-aptation or inversion of the edges. In most big hospitals the skin suture is done by the post-mortem attendant with dexterity and speed, but without great care. These unqualified assistants are specially apt to hurry through this work; the use of dissecting forceps should be taught and practised as a routine measure by everyone in the pathological department.

*Reasonable Care.*—It is in the absence of a living patient who will suffer from error that carelessness is so apt to take root, and it is often the man with a fair amount of experience who errs the most—the novice being far too anxiously concentrated on the work in hand. We have all seen the reflection of the musculo-cutaneous flap continued with bold sweeps of a knife while the manipulator looks aside to answer questions or to dictate notes. The subject may be beyond injury, but the pathologist's fingers are not. Incidentally the clinical honorary staff are sometimes guilty of urging the performance of an autopsy at an unusual time when the pathologist has other duties, or of attempting to hurry the progress of a dull case belonging to someone else in order to witness the examination of a supremely interesting one of their own. The code of the operating theatre or, indeed, of the navigation bridge, might with advantage be more closely followed in the post-mortem room. Some pathologists aver that as time goes on they and their assistants probably develop a natural immunity, and it has even been suggested that those who get slight septic infections in their early days of post-mortem work are fortunate in that they are raising an effective barrier against later and possibly more serious trouble. This is an attractive theory, but is hardly susceptible of proof, and few would recommend attempts to immunise beginners in this dangerous way.

### *The Prophylactic Treatment of an Injury.*

The problem before us is the selection of the exact procedure to be adopted when a finger is pricked or cut or the forearm is scratched during post-mortem work. The desirability of the immediate adoption of such drastic measures as amputation or excision of the wound have recently been discussed. I find it difficult to choose words emphatic enough to condemn panic amputation. If we consider how small is the number of severe infections following post-mortem injuries and how rarely does a fatal issue follow or a serious deformity result, we must conclude that hasty amputation, which must bring with it great disability, is never justifiable. Such advice would imply that an infected finger means probable death or disablement, for on no other grounds could a crippling operation be justified. Fatalities may result either from the fulminating type of lymphangitis—fortunately rare—or because the early treatment of the infected finger is inadequate, but their occasional incidence should not be allowed to induce such a pessimistic outlook as to interfere with a sense of proportion.

The question of the excision of the wound has also been raised. I do not advise excision for the following reasons. Needle pricks and knife punctures are very small and, in fact, can often not be recognised unless bleeding, and the area in question may therefore be too ill-defined to excise. Secondly, the pulp of the finger has none too much tissue to spare; if excision were performed, a painful scar in the tactile part of the finger would often result. In the presence of scratches of the superficial epidermis, to think of an excision, which entails the opening up of the subcutaneous tissue and often an extensive sutured wound, is surely inadmissible. When the wound is an incised one of some size and depth on the forearm or the dorsum of the hand, then I have nothing to say against excision, except that I consider it unnecessarily severe, for it must be remembered that post-mortem wounds of this sort are regular incised wounds without any severe laceration or damage to the underlying tissues. The problem is not quite the same as that of the war injuries, where we had to deal with damaged and devitalised muscle which directly encouraged sepsis. Finally, I believe that post-mortem injuries can be effectively sterilised without such drastic methods.

The steps to be taken in these cases are as follows: (1) cease work at once; (2) encourage bleeding; (3) cleanse the wound thoroughly; (4) immerse the wound in an iodine bath; (5) put on a sterile dressing; (6) give suitable drugs; (7) immobilise the arm.

1. *Cease work* obviously means that work should be instantaneously abandoned and handed over to someone else; should there be no one available the whole routine of the treatment should be gone through (except immobilisation), and the examination finished as quickly as possible, with a fresh glove over the injured part.

2. *Encourage Bleeding.*—Generally the immediate concern of the subject of the injury and of the onlookers is to stop the bleeding. This instinct is not to be followed. Bleeding—especially slow welling-up from the depth of the wound—will wash out infecting organisms quicker than anything else. The wound, if not bleeding, must be made to bleed, and the best way to do this is to use the arm compressor of a sphygmomanometer and to blow it up till passive congestion is obtained. If it is blown up until the radial pulse disappears and air released until the pulse is again perceptible, the right amount of pressure will have been secured. The bleeding should be allowed to continue for two and a half minutes by the clock and then, the arm band having been removed, the next stage should be proceeded with.

3. *Thorough Cleansing of the Wound.*—When discussing the treatment of injuries to the hands of industrial workers I have always deprecated washing or scrubbing the part, for this reason. Their hands, from the nature of their work, are very dirty, and scrubbing only means the introduction of more dirt into the wound; the hands of post-mortem workers may be stained with dyes but are otherwise clean, and there is a minimum of infection around the wound. These injured fingers or hands should therefore be scrubbed with a sterile nail-brush and ether soap. The part is then dried with a clean towel and immersed in the iodine bath.

4. *Iodine Bath.*—By this I do not mean the usual drachm to the pint solution used in the treatment of established infections, but that the injured part must be *immersed* in an alcoholic tincture of iodine and kept there for *five* minutes by the clock. The edges must be separated so that the iodine penetrates to the depths. The evidence in favour of iodine as a prophylactic is overwhelming as the statistics of Kanavel and of Mock show. Its value is proved by its use in thousands of industrial concerns all the world over, and it is one of the components of the army first field dressing. But it must be used properly and lavishly. I know nothing more futile than the custom of dabbing a small amount of tincture of iodine on to a cut with a swab.

5. *The Sterile Dressing.*—A sterile or antiseptic dressing is now applied with a generous amount of wool, and the greatest care must be taken to ensure that the bandage is not so tight as to impede the flow of blood through the injured area.

6. *Drugs.*—Of the value of manganese I am convinced. Manganese butyrate should be given in 1 per cent. solution as a 1 c.cm. injection into the muscles of the buttock. Prof. L. S. Dudgeon reports favourably (see THE LANCET, Jan. 23rd, p. 169) on the intravenous use of mercurochrome.

7. *Immobilisation of the Arm.*—The value of the immobilisation of an injured area to allow the natural defences of the body full scope for their efforts to localise the infection is obvious. The arm should be placed on an internal angular splint which must reach beyond the tips of the fingers and is comfortably fixed with wool and bandages. The remainder of the day ought to be spent quietly at home and to be followed by a long night in bed. The splint may be removed on the next day and the hand carried in a sling till 36 hours have elapsed. Finally, if the least swelling, throbbing, or pain at the site of injury occur a surgical opinion should be obtained without delay.

### *Treatment of an Established Infection.*

It may be that a prick is so slight as to have escaped notice, or that infection has supervened in spite of energetic prophylaxis. In an article on Infections of the Hand, which previously appeared in this series,[1] I have summarised the differential diagnosis and treatment of the various forms of sepsis that may arise from injuries to the finger. Briefly, to recapitulate, the inflammatory process may take the following forms (1) acute lymphangitis; (2) infection of the terminal segment of the fingers; (3) acute tenosynovitis, and (4) infection of the fascial spaces in the palm

The treatment of septic conditions other than lymphangitis resolves itself into proper incision and drainage; when this is adequate healing results, when it is neglected nothing else can help the patient. Whereas lymphangitis is at first an infection of a few lymphatic vessels and tends to remain localised, spreading only by continuity up these normal paths, if the area is incised numbers of healthy lymphatics are opened up and infected, the total area of inflammation being vastly increased. For the same reason cuts across the advancing red lines are to be condemned. For these reasons, though differential diagnosis between all these conditions named is of great importance, the first and fundamental distinction to be made is that between acute lymphangitis and any of the others. I will therefore first briefly recall the principles of the differential diagnosis and treatment of the septic conditions other than lymphangitis and then discuss at greater length the best ways of coping with this dangerous condition.

1. *Infection of the Terminal Segment of the Finger.*—A sensation of soreness, possibly of pricking in the finger-end, and that night a throbbing pain of increasing severity, is a common history. On the following morning there is a red, tense, shining, very swollen and tender finger-end. There is an absence of severe constitutional symptoms, and of typical red lines in the forearm. Treatment should consist in one or, if necessary, two lateral incisions, or a horse-shoe incision formed by uniting the two lateral cuts, which should not extend upwards as far as the distal finger crease, by one over the tip of the finger, a quarter of an inch in front of the nail.

2. *Infection of the tendon sheath* can arise (*a*) directly from a gross crushing injury, (*b*) following on a pulp infection. The latter only need concern us here. Kanavel gives as the cardinal signs of infection of the tendon sheath: (1) Exquisite tenderness over the entire course of the sheath. (2) Symmetrical enlargement of the entire finger. (3) Excruciating pain on complete extension of the finger, most marked at the proximal end. (4) Moderate flexion of the finger. In addition the bases of the two adjacent fingers are swollen, and the dorsum of the hand is highly œdematous. The whole hand is somewhat tender, but even the slightest pressure over the sheath gives intolerable pain. The trouble may extend to the bursæ in infections of the little finger and the thumb. A raised temperature and rigors may be present, but the local signs will serve to distinguish the infection from primary acute lymphangitis. Treatment consists in lateral incisions of which the exact position, extent, and direction cannot here be defined, but it may be said that they are more often too small than too large.

3. *Infection of the Fascial Spaces of the Palm.*—Fascial space abscesses are usually secondary to infection elsewhere in the hand. The temperature is likely to be high and the general condition bad. Pain over the area, not so accurately limited as in acute tenosynovitis, tenderness, and local swelling, are present. In infection of the middle palmar space the dense fascia does not allow of much swelling, but the normal concavity of the palm may be rendered convex. Treatment is the drainage of the spaces through

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[1] THE LANCET, 1924, i., 960.

the canals of the appropriate lumbrical muscles, the incisions extending from the web, distally, as far as the middle flexion crease, but not beyond.

4. *Pus Spreading to the Forearm.*—Pus may track from hand to forearm either by rupturing out of the upper limits of the synovial bursæ or along the upward prolongation of the middle palmar space. The result is the same, for both routes lead to the plane between the superficial flexor mass and the deep flexors with the pronator quadratus. From here pus can track laterally to reach the ulnar and radial borders of the forearm immediately anterior to the bones, or upwards along the same plane towards the elbow. It is therefore clear that the only method of draining such an extension is by lateral incisions parallel to and immediately anterior to the plane of the bones. Severe cases will demand an incision on each lateral border; no other approach provides adequate drainage.

The brief statements as to treatment must not be taken to imply more than the general lines which a surgeon of experience will follow. In the article already referred to I have given more details, but those who wish to equip themselves to treat infections of the finger and hand are advised to study Prof. A. B. Kanavel's masterly work on the subject.[2] I would here only point out the need of a general anæsthetic (gas and oxygen) for every operation; the desirability of operating in a bloodless area, using the arm compressor of a sphygmomanometer first as a tourniquet and later to induce passive congestion; and the advantages of using wicks of rubber tissue for drainage. No incision should be made before the exact anatomical position of the pus has been determined, and though swelling of the dorsum of the hand may be, and usually is, prominent, incisions should not be made there until every other possible site has been excluded. After-treatment should consist of fomentation for 72 hours, followed by light dry dressings and hot, dry air baths. Early active movements of the fingers should be encouraged.

### *Acute Lymphangitis.*

It is this dangerous condition which, from the very fact that no drastic surgical treatment is called for, gives rise to some of the most perplexing problems of therapeutics. It is essentially an infection of the lymphatics, with little or no extra lymphatic local infection at the primary site, though at a later date a local abscess may form at the site of infection. The process spreads rapidly through the normal lymphatic channels up the forearm, into the axillary glands, and later in severe cases into the general blood stream. A slight injury to a finger may be followed by a slight feeling of tense discomfort without the typical throbbing of an infected pulp; on examination there is no appreciable local swelling. A feeling of chill or even occasionally a rigor may have occurred. The red lines of lymphangitis will be visible in the forearm and grave constitutional symptoms will be present. Kanavel has described four types of acute lymphangitis:—

1. Acute lymphangitis, without local complications. Here the symptoms are as described above with red lines and a temperature of 103° F., and a general feeling of severe malaise. Treatment produces a dramatic change, and within a few hours the condition is relieved. (2) A similar condition which clears up quickly, but leaves behind a small local abscess at the site of infection. (3) Acute lymphangitis, with systemic involvement and associated with severe secondary tendon-sheath infections. (4) Acute lymphangitis, with severe systemic involvement.

These last may be of the fulminating type, rapidly flooding the patient with an acute septicæmia followed by a fatal result in a few hours or days. These cases constitute one of the tragic disasters of surgery. Other cases, though not fatal, exercise the skill, patience, and lasting power of the medical attendant to the utmost. They rapidly become seriously ill with a maintained high temperature, rigors, wasting, and a reduction of resistance to the lowest ebb; but with energetic treatment they will mostly pull through.

The treatment of acute lymphangitis must be local and general. The local treatment consists in swathing the hand, forearm, and arm in an old-fashioned poultice, for fomentations lose their heat too rapidly. Only in the presence of well-defined complications, such as localised abscesses or tenosynovitis, is active surgical intervention called for. It cannot be too strongly emphasised that incisions for lymphangitis do no good. Indeed, as is pointed out above, they do harm in increasing the area for absorption.

The general treatment is confined to eliminative and supportive methods. Absolute rest and quiet, saline purgatives, diuretics, and stimulants all have their place. Antistreptococcal serum in large doses has been used without very encouraging results. However, I have found blood transfusion a weapon of the utmost value in combating septicæmia, and recommend that the grouping of available donors should be undertaken at the first threat of a serious infection, one being kept always at hand till the acute stage is past. Metastatic collections of pus must be watched for and the danger of an empyema borne in mind

R. M. HANDFIELD-JONES, M.S. Lond., F.R.C.S. Eng.,
Assistant Director, Surgical Unit, St. Mary's Hospital.

# Special Articles.

## LIVERPOOL CANCER RESEARCH COMMITTEE.

THE following memorandum has been sent to THE LANCET for publication:—

It may be held to be wise to ignore criticisms that have no basis in fact. Nevertheless, the spread of adverse criticism creates rumours, and from our war-time experience we know how damaging rumour may be both to morale and to the pursuit of proper procedures. For this reason we consider it expedient to inform the medical profession of the truth of certain matters concerning which grave and unjustifiable charges have been made. These charges are of two kinds.

1. It has been stated that some great secret has been withheld from publication—that is to say, the method of preparation of the material used has not been disclosed. Now, in spite of the fact that Prof. Blair Bell would have been absolutely justified, and would have received the entire support of this Committee in withholding publication on this matter in view of the manifold difficulties of manufacture and the dangers of usage, as so ably explained by Prof. Carter Wood in THE LANCET (Feb. 20th, 1926, p. 414), in point of fact this course has not been adopted. So long ago as February, 1924, Prof. Blair Bell described and discussed the method of preparation of colloidal lead. Since that time many variations have been employed, but the general method has remained the same. The dosage and all the dangers and difficulties have likewise been published. Finality, however, has not even yet been reached. The very fact that the general body of practitioners appears to be ready to use the material if it be distributed without control, to the possible disparagement of the method and serious risk to the public, has impelled the Committee recently to protect the method of manufacture, as was done in the case of insulin.

2. With the dissemination of such erroneous ideas, it became inevitable that many would charge Prof. Blair Bell with "making hay while the sun shines," and say that he is keeping the treatment in his own hands, is exacting exorbitant fees, and is rapidly amassing a fortune by the employment of what to all intents and purposes they assert is a secret remedy. This charge is wholly contrary to the truth.

The Liverpool Cancer Research Committee have evidence that during the first five years 75 per cent.

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[2] Infections of the Hand. Lea and Febiger. Fifth edition. 1925.

of the 200 odd patients treated were virtually charity patients, some few paying a nominal fee for accommodation, the majority being treated free of all cost. In other words, during the first five years since the initiation of the treatment Prof. Blair Bell has received remuneration from at most 75 patients—that is, an average of 15 each year. Nor, considering the benefit conferred, can the remuneration be regarded as other than most moderate.

Feeling acutely the charges circulated against him—often by men he had regarded as friends—at the end of four years a cheque for the whole amount charged for treatment was sent by him to the Cancer Research Committee. This cheque the Committee refused to accept. At the end of last year, on his return from America, when, for the first time, there was a large influx of patients, Prof. Blair Bell approached the Cancer Committee again asking them to receive all the fees for treatment, at the same time becoming themselves responsible for all necessary expenses. Knowing how gravely his intense preoccupation with cancer had interfered with his gynæcological practice, the Committee would not consider this offer. They made the counter offer, which has been accepted, that for his services as Director he should, from Dec. 1st, 1925, receive a stipend like the rest of the staff. In return the Committee assume all responsibilities for the housing and maintenance of the cancer patients under Prof. Blair Bell and the clinical staff; they receive all the fees and place all the books detailing income and expenditure under the weekly supervision of a well-known accountant. They have taken under their control the nursing home previously occupied by Prof. Blair Bell's gynæcological cases and have, in addition, bought and furnished another. Out of the moneys received they are continuing the stipends of those of the staff engaged in research, and are enlarging that staff, and they have by resolution agreed that all moneys over and above those expended as aforesaid shall be devoted to the furtherance of medical research.

We may add that these arrangements have been submitted to the President of the General Medical Council and have received his personal approval. Further, to secure their position, the question of incorporation is being considered by the Committee.

It is felt by all engaged in this work that, if it can be generally known that Prof. Blair Bell and the clinical staff are not benefiting to any unusual degree by this work, but are by their labours supporting the entire burden of the laboratories and clinical organisations, there may be greater confidence in, and greater sympathy with, what promises to develop into a very wonderful advance in the treatment of a most terrible state.

We enclose a copy of the circular letter which has been drawn up and sent by the Director to all doctors who have written to ask for treatment for their patients.

Signed, on behalf of the Liverpool Cancer Research Committee,
J. A. SMITH,
*Chairman.*
REX D. COHEN,
*Treasurer.*
J. GEORGE ADAMI.

*Liverpool, Feb. 23rd, 1926.*

[ENCLOSURE.]

DEAR SIR,—Thank you for your letter. You will understand that we are engaged in a scientific investigation, and have regarded our clinical work as a test of the findings obtained in the laboratory. We do not pretend and never have pretended that we have a "cure for cancer." Nevertheless, the ultimate aim of all such work is that, and we are prepared to take suitable cases that can come for consultation in the first instance, provided they are fully informed:—

1. That consultations are arranged in order that it may be determined whether the case is suitable for further investigation. A consultation does not mean that, *ipso facto*, the patient will be taken for treatment.
2. That the treatment itself may be dangerous.
3. That the treatment is experimental in nature.
4. That there is no guarantee whatsoever as to the result.
5. That patients must, if they come, place themselves unreservedly in our hands, and continue the treatment so long as we think it advisable.
6. That accessory treatment, such as X rays and operation, may be necessary.
7. That, if an operation has been performed, a section must be sent in advance.
8. That *all* fees are handed over to the Cancer Research Committee.

Yours very truly,
W. BLAIR BELL,
Director.

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# MEDICINE AND THE LAW.

### *MORE ACTIONS AGAINST DOCTORS.*

IN addition to the action for negligence brought by Mrs. Venn against Dr. Todesco and Dr. Elder (discussed in a leading article on p. 560) two other actions against doctors were heard recently in the law-courts. In one of them Mrs. Norris claimed damages against Dr. W. A. MacWilliam, of Norbury, for alleged breach of contract and for personal injury, said to be due to his negligence in treating her at childbirth. She also claimed £430 special damage. The defendant denied the negligence and counterclaimed for his unpaid fees. The case presented no new point of general principle. After a careful hearing before the Lord Chief Justice it fortunately reached a final decision, Dr MacWilliam succeeding at all points.

The second case was one of greater difficulty and less finality. The facts, as stated in the *Times* report, were these. An ex-officer, Captain F. Hume-Spry, late R.F.A., was invalided out of the Army in 1917. Suffering from neurasthenia he was examined on behalf of the Ministry of Pensions in 1920, and entered one of the Ministry's hospitals. He passed through other hospitals and in 1923 went to Latchmere. Two months later a medical certificate was signed for a reception order under the Lunacy Act, and he was removed to the Old Manor Asylum, where he remained under a second certificate. Later he left the asylum, a doctor having certified that there was sufficient cause to release him. He then began two actions, one against the doctors who had certified him for removal and retention, the other against his wife and other persons for conspiracy. Prima facie these proceedings against the doctors were blocked by Section 330 of the Lunacy Act of 1890, if they had acted in good faith and with reasonable care. Under the usual legal machinery in chambers the action was stayed. The plaintiff appealed to Mr. Justice Bateson, who confirmed the order staying the proceedings, but granted leave to appeal further. The Court of Appeal reversed the order and directed that the action should proceed. Under the statute the sole question for the judges at this stage was whether or not they were "satisfied that there is no reasonable ground for alleging want of good faith or reasonable care." It was perfectly clear that the judges could not be thus satisfied, for the plaintiff was able to produce affidavits sworn by medical practitioners testifying to the contrary. "It might be said," observed Lord Justice Bankes, "that it was rather surprising to find a body of medical men who could come forward and say of others that they had not only acted without reasonable care, but also with want of good faith; but in this case there were two medical men who had come and pledged their oath upon both points." The court could not disregard such testimony; the case must go to a jury. The learned judge was careful to say that he expressed no view on the merits of the case, nor whether the affidavits contained opinions which a jury was likely to accept.

### *PROFESSIONAL SECRECY AND THE DANGEROUS DRUGS ACT.*

The recent prosecution of Dr. George C. Kingsbury, for supplying morphine contrary to the Dangerous Drugs Act, raised important professional issues. Counsel for the prosecution made it clear that not the slightest reflection was made upon the defendant's personal honour; the case was one, however, of much more than personal interest. The facts seem to have been undisputed. Dr. Kingsbury, having moved from the North of England to London, and having become a barrister-at-law, no longer carried on a general medical practice, but occasionally saw some of his old patients in a friendly way. Amongst these were two morphine addicts. One of them, a woman, he succeeded in curing. The other, a man of 70, he was treating, by the method of gradual withdrawal, with good prospect of success. Dr. Kingsbury purchased a supply of morphine from a chemist for a period of a year or more and personally handed the tablets to the patient whom he was treating gratuitously. The prosecution said that the doctor must keep a register in the prescribed form or else a day-book containing the patient's name and address. Dr. Kingsbury refused to disclose this information. He contended that a consulting physician in personal charge of a case is not obliged to keep any record; he added that thousands of doctors were never asked to keep these registers and never would. The magistrate treated the prosecution as a test case, convicted the defendant, and imposed what was euphemistically called the nominal penalty of 25 guineas. Dr. Kingsbury intimated that he would ask for a case to be stated with a view to appeal.

The Home Office, it appears, is seeking to ascertain how far it can go under its present powers. After studying the report of the recent Departmental Committee on Morphine and Heroin Addiction, one certainly retains an impression that the circumstances of Dr. Kingsbury's case were therein recognised as not wholly covered by existing legislation. If this be so, it seems undesirable that so big an issue should be dealt with by pressing prosecutions under the present law rather than by asking Parliament to pronounce afresh.

On the all-important question of the confidential relations between doctor and client the recent report had something to say. It recognised the disadvantages of impairing those relations. It observed that public opinion and the legislature have in some instances regarded the interests of the community and of the patients themselves as outweighing the interests of professional secrecy; but the report added that "each proposal for extension of this principle to a new group of cases must be considered on its merits." With this recommendation the medical profession would probably be prepared to agree, provided that the proposals are to be considered by public opinion and Parliament rather than by the police-court.

## VIENNA.

(From our own Correspondent.)

### *The Problem of the Expatriated Practitioner.*

Ever since the end of the war there has been serious trouble over the nationality of people born in the non-Austrian States of the old Empire, who have taken up their abode in what is now called the Austrian Republic. The right to practise medicine here is limited to Austrian subjects, but the various peace treaties have assigned many practitioners to other countries—countries whose language they may not even know. Being unfamiliar with its customs and people they have no desire to get to their native land, although—mainly for military reasons—their countries claim them. Out of about 5900 practitioners fully 27 per cent. are not Austrian born, whilst in Vienna itself the proportion of doctors technically not Austrians reaches about 39 per cent. It would be utter ruin for them to be uprooted and to leave Austria, or to lose the right to practise here. The Ministry of Home Affairs has accordingly decided to nationalise unconditionally all persons born in the former Austrian Empire who were in practice here before 1920. Other "aliens" must apply for nationalisation, and their applications will be considered in a most liberal sense. The Government has also begun negotiations, now nearly complete, for obtaining full reciprocity in this respect with all the seceding States, especially as regards the frontier cities and health resorts.

### *Fees between Medical Men.*

The Vienna Medical Council has repeatedly considered the relations between medical men who render one another medical assistance. It was understood, of course, in older, better times that such services were gratuitous, but now, with changed conditions, the views of the majority of doctors have changed also. It must be said that under the old system the doctor and his family were for the most part worse off than private individuals, who in case of illness could summon the family physician as often as they thought fit. The medical man, on the contrary, could not bother his doctor too much because the service was gratuitous, and many a necessary call was never made because of these scruples. More than two years ago suggestions were made in the German (Austrian) medical papers by a number of practitioners who wanted a ruling on these questions, and at a recent meeting of the Medical Council a resolution was presented and adopted, to the effect that every service requires adequate payment and that medical men and their families should be treated on the same principles as other private patients. It was suggested that, for the time being, the profession should accept the following proposals: (1) Every medical man who is offered a fee for the treatment of a medical man or the family (wife, children) dependent on him for their upkeep is bound to accept it and to hand it over in a tactful way to the funds of a medical or other charitable institution or to the Medical Organisation. (2) Such fees shall be offered at a scale not exceeding that arranged between the Organisation and the sickness club of the Civil Service men. These provisions, it is hoped, will remove the qualms of patient and practitioner. They will also suit the patient's pocket, for the fees are only about one-third of those paid by private patients, and though the doctor is bound to accept an offered fee, he does not ask one. These arrangements are, as stated above, only temporary. There is some question whether it would not ultimately be more convenient to have a central clearing office, so to say, for the payments, so as to do away with the awkwardness—to some doctors, at least—of offering fees to a colleague. It is intended that funds from this source shall be used to ensure better nursing for medical men requiring treatment in hospitals or nursing homes. Definite regulations will be suggested after the present scheme has been tried for one or two years.

### *The Title of "Specialist."*

In conformity with the views held by the large majority of medical men, it has been decided by the Organisation that a doctor may not style himself specialist and become a member of the officially recognised Association of Specialists until he has fulfilled certain requirements. These are: Qualification as M.D.; three years' study in a hospital or clinic devoted only to the specialty selected (which must include at least one year's service as house surgeon or house physician); and another year as resident or junior surgeon or physician in a general hospital. This means that a specialist has seen four years' hospital work before he becomes a fully-fledged member of the Association and gains the right to settle down in practice. Difficulties have now arisen over doctors who are in practice already or are in the act of taking it up, but have not had that kind of elaborate preparation. In order to regularise their position it has been decided that doctors who graduated before Jan. 1st, 1923, and have had at least two years' specialist training may apply for membership of the Association of Specialists. Those who have been in specialist practice for two years or more are exempt from all restriction.

### *Fewer School-children and Fewer Males.*

The census of school-children in December, 1925, has shown that the total number of pupils in all schools from 6 to 18 years of age is 61,060 less than last year. Statistics of the Board of Health of Vienna show that to-day we have 200,288 children in the age-period up to 10 years, whereas in 1914 the corresponding number was 330,885. In other words, that age-group which represents the coming generation shows a drop of 30 per cent., and this fall will be the more marked when the present generation gradually dies out. Furthermore, in 1914 the relative number of males to females was 1000 : 1077. At present it is 1000 : 1251—i.e., there is a surplus of females of over 25 per cent., and this is likely to increase still further since amongst children up to 15 years the disparity is even greater. It means that in ten years no less than 30 per cent. of the Viennese women will be doomed to celibacy, and as the population of the city is even less than in 1910 (the loss is 165,041, or over 10 per cent.), the birth-rate is not likely to reach a high level.

## CANADA.

(FROM AN OCCASIONAL CORRESPONDENT.)

### *Proposed Hospital Tax for Montreal.*

THE hospitals of Montreal are in financial difficulties, and it is obvious that their cost will increase rather than diminish as time goes on. At present they are maintained chiefly by the donations of a comparatively small group of citizens, and there is an increasing feeling that this is a bad arrangement. Paying patients in the public wards do not contribute to the cost of their maintenance, and thousands of in-patients are housed, fed, and treated gratuitously The grants given by provincial and municipal governments are very small. Recently it has been proposed that a tax should be levied to meet the annual deficits of the hospitals. This proposal has been generally endorsed by the citizens, and the only question now to be answered is: What is to be taxed? Luxury taxes on motor-cars and liquor sales have been suggested, but it is objected that motor-cars are not luxuries—though few have the hardihood to say the same of liquor. A tax on motor-cars might be equitably distributed, it is thought, over the holders of motor-car licences, upon a graded scale varying from 1*d.* a week on cars costing £200 or less, up to 3*d.* a week upon more expensive cars. Liquor is under State control in the Province of Quebec, and a substantial portion of the revenue from a liquor tax would be collected from the travelling public who freely patronise the Government stores. A small tax on these people would be no hardship. The form which the taxation shall take is a matter for discussion, but it is encouraging to see how cordially the proposal has been received by the community at large. Perhaps a way out of the difficulties of the hospital situation may really have been found.

### *The Birth-rate in English-Speaking Canada.*

The birth-rate in English-speaking Canada continues to decline. In June last, the most recent month for which the record in the Bureau of Statistics is complete, 12,396 babies were born in eight provinces, whereas in June, 1924, 13,344 infants were born in the same area, and in June, 1921, 13,060. (These statistics do not include stillbirths, of which there were 427 last June.) During the past four years, it is stated, the birth-rate for all Canada, exclusive of Quebec, has dropped from 26·5 per 1000 of population to 22·1. Maternal mortality, however, is also diminishing. In June, 1925, it amounted to 5·5 per 1000 living births, compared with 6·4 in the same month in the previous year. The infantile mortality was 67·8 per 1000 living births, which also represented an improvement.

### *University News.*

In almost all departments of McGill University the standards for entrance have been raised. In the faculty of dentistry the change is especially notable, and a two years' course in arts as a preliminary to the four years' dental course is now required. No changes of importance have been made in the curriculum of the medical student who has two years' general education in arts followed by five years' medical study.

Dr A. A. James, of the Western University, London, Ontario, has been given a grant of £200 by the Advisory Council for Scientific and Industrial Research to assist him to continue the work on the effect of liver extract on blood pressure, on which he has been engaged for some time with Dr. Laughton.

A Department of Child Study has been started at McGill University and has been endowed with £2000 a year for five years. A nursery school of 20 pupils has recently been opened.

On Feb. 13th a portrait of Dr. Francis J. Shepherd, Emeritus dean and professor of medicine at McGill, was unveiled in the University. Dr. Shepherd, who is now 76 years of age, gave an interesting account of the changes he had seen in 56 years at the school.

Much regret is felt at the death in Montreal of Dr. Thomas Workman Burgess, who was born in 1849 and served as surgeon to the North America Boundary Commission. Later he became professor of mental diseases at McGill University, and was well known as a trenchant and able writer on psychiatry.

## IRELAND.

(FROM OUR OWN CORRESPONDENT.)

### *Street Accidents in Dublin.*

THE police authorities in Dublin have lately been giving attention to the prevention of street accidents, and have issued an appeal to all users of the streets to help in reducing the number of accidents. Large posters have been printed and distributed to all important owners of street vehicles, to be displayed in garages and other places where they can be seen by drivers. The posters set out in simple language what is to be done to avoid accidents, and those in charge of vehicles are asked to coöperate with the police on the lines suggested. It is pointed out that the street accident rate in Dublin has doubled in two years. In 1925 there were 1103 traffic accidents, in which 29 persons were killed, 88 seriously injured, and 595 received minor injuries. Handbills have been issued advising pedestrians and cyclists how to behave in the streets. In some cases the punishment of persons culpably responsible seems unduly light. Last week a motorist was convicted of the manslaughter of a young boy in a Dublin thoroughfare. Having killed the boy he drove off, nearly killing a policeman who tried to stop him. The judge in sentencing him said that he had killed the boy "by wilful, reckless, negligent driving." Yet the sentence imposed was only six months' imprisonment with hard labour.

### *Sanitary Condition of Monaghan.*

Dr. Robert McDonnell, one of the medical inspectors of the Department of Local Government and Public Health, recently investigated the sanitary condition of the town of Monaghan, and the state of affairs he describes in his report is shocking. "Wretched hovels," he says, "inhabited by human beings, without light, without space, and without the ordinary conveniences of a dwelling-house, go to make up the lanes and side streets of the town. The byres, where the milk consumed in the town is produced, are on a par with the slum houses—dark, damp, and dirty. Healthy, clean milk could not be produced in some of the cowsheds visited by me." There was, he said, no inspection of milk or meat supplies. The surroundings of the slaughter-houses were insanitary. The sewage arrangements were very bad. There were only old stone drains, and many streets had no sewers at all. The old ones were worse than useless, and were a grave menace to the public health of the town because they could not deal with the volume of sewage requiring removal, and their discharge caused gross pollution of an open river which runs close to the town. About 200 dwelling-houses were without sanitary conveniences of any kind. The lanes and alleys were in an appalling condition.

The conditions disclosed by Dr. McDonnell are almost incredible unless it is remembered that there is as yet no public health administration in the ordinary sense in Ireland. Only two cities—Dublin and Belfast—have whole-time medical officers of health, and it was only last year that the legislature of the Free State made it compulsory for county health authorities to appoint whole-time medical officers of health. It has not been possible yet to put this provision into force, but preparations are being made to do so.

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

Surg. Comdr. A. K. Smith-Shand is placed on the Retd. List with the rank of Surg. Capt.

### ROYAL NAVAL VOLUNTEER RESERVE.

Proby. Surg. Sub.-Lt. R. R. Dodd to be Surg. Sub.-Lt.

## ROYAL ARMY MEDICAL CORPS.

### TERRITORIAL ARMY.

Capt. G. F. Wilson is granted pay and allowances of his rank.

Lt. I. Morgan ceases to hold a commission in the Territorial Army.

G. Fitzmaurice Keatinge (late R.N.V.R.) to be Lt.

### MILITIA.

Capt. G. A. Cole to be Maj.

## ROYAL AIR FORCE.

Flying Officer R. H. Stanbridge is promoted to the rank of Flight Lt.

Flight Lt. H. E. Flavelle (Capt., Army Dental Corps) relinquishes his temporary commission on return to Army duty.

## INDIAN MEDICAL SERVICE.

Maj. Narendra Singh Sodhi to be Lt.-Col.

The King has approved the restoration to the active list, from the temp. non-effective list, of Capt. Pirojsha Merwanji Antia.

The King has approved the retirement of Lt.-Col. W. McM. Pearson.

## FOREIGN DECORATIONS FOR SERVICES DURING THE LATE WAR.

The King has given unrestricted permission to the following officers to wear the Médaille de la Reconnaissance Française en Vermeil, conferred upon them by the President of the French Republic: Brevet Lt.-Col. W. H. G. H. Best, R.A.M.C. (Special Reserve).—en Argent: Maj. H. D'Arnim Blumberg, O.B.E., T.D., R.A.M.C. (T.); Capt. A. J. Clark, M.C., R.A.M.C. (Special Reserve); Lt.-Col. H. Collinson, C.B., C.M.G., D.S.O., T.D., R.A.M.C. (T.); Maj. J. M. M. Crawford, O.B.E., R.A.M.C.; Capt. J. Jackson, R.A.M.C. (T.); Capt. L. de G. Joubert, C.A.M.C.; Capt. J. A. Lorrain, C.A.M.C.; Maj. J. A. Lussier, C.A.M.C.; Maj. M. J. Mahony, D.S.O., T.D., R.A.M.C. (T.); Maj. A. J. Mollison, Aust.A.M.C.; Maj. G. S. Parkinson, D.S.O., R.A.M.C.; Temp. Capt. W. H. Rayner, R.A.M.C.; Lt.-Col. P. Z. Rheaume, C.A.M.C.; Maj. A. N. Rivet, C.A.M.C.; Lt.-Col. E. Ryan, C.M.G., D.S.O., R.A.M.C.; Maj. Edouard Charles Saint-Pierre, C.A.M.C.; Col. A. D. Sharp, C.B., C.M.G., T.D. (T.); Maj. G. H. Stevenson, O.B.E., M.C., R.A.M.C. (Special Reserve); Capt. E. S. Stork, D.S.O., R.A.M.C. (T.); Capt. E. W. Strange, R.A.M.C. (T.); Col. C. P. Templeton, C.B.E., D.S.O., C.A.M.C.; Col. A. G. Thompson, C.M.G., D.S.O., retd. pay; Maj. A. C. Turner, D.S.O., T.D., R.A.M.C. (T.); Temp. Capt. D. Ll. Williams, M.C., R.A.M.C.; Maj. H. K. Griffith, T.D., R.A.M.C. (T.); Temp. Capt. J. Jardine, O.B.E., R.A.M.C.; Maj. W. F. McAllister-Hewlings, R.A.M.C. (T.); Capt. Ernest Brooke Pike, R.A.M.C. (T.); Capt. W. G. Shakespeare, R.A.M.C.; Maj. H. C. Sidgwick, O.B.E., R.A.M.C.; Capt. E. M. Townsend, M.C., R.A.M.C.; Maj. G. W. W. Ware, D.S.O., R.A.M.C.

Dr. Thomas Lawson Craig (senior medical officer) has been appointed a Member of the Executive Council of the Gambia and an Official Member of the Legislative Council of that colony.

# Correspondence.

"Audi alteram partem."

## TREATMENT IN DISEASE OF THE NERVOUS SYSTEM.

*To the Editor of* THE LANCET.

SIR,—The excellent Lettsomian lecture in your issue of Feb. 20th by Dr. Farquhar Buzzard is so transparently honest that it may seem rather ungracious to offer any criticism; however, as it appears to me to require some elucidation I reluctantly undertake the task.

Dr. Buzzard is evidently anxious to tell the truth, the whole truth, and nothing but the truth, but, not infrequently, he so glosses over the truth that it would be impossible for any patient to fully realise the hopeless character of the opinion which he has heard expressed. Although I have dabbled a little in nervous diseases, the utter futility of treatment, as carried out in the present day, has prevented me from ever specialising in the subject, and I only now present my opinion for what it may be worth. I have often said that any real advance in the treatment of disease must be on the lines of prevention. Here there is practically an untilled field, but the great drawback to its cultivation is that prevention does not pay. In 1907 and often since I have suggested that payment should be by results, and in the case of death the medical attendants might be required to pay the funeral expenses. If this were in vogue in the treatment of nervous diseases neurologists might often end their days in an asylum for the destitute. Occasionally patients, and often their friends, "want to know the worst," so that the consultant is frequently tested as to how to tell the truth, the whole truth, and nothing but the truth without any unnecessary circumlocution and without any exposure of his own ignorance.

The helplessness of the neurologist in dealing with lesions of the upper motor neurone points to the advantage of prevention over any attempted cure, and this is by no means a hopeless task if more attention were paid to the vascular system. There is no insuperable difficulty in preserving the blood-vessels of the brain, as well as elsewhere, in a healthy condition, even to advanced age.

Dr. Buzzard expresses his opinion of the uselessness of electricity in these upper neurone cases in no uncertain language, and I do not cavil with him on the point, though I think his opinion might be more accurately expressed. "If all the current wasted in a year on the limbs of hemiplegic patients could be stored in accumulators, the Prime Minister's scheme for supplying electricity to the country would be rendered superfluous." He surely should have based his conclusion on reliable evidence as to the amount of current thus running to waste. It might then have been possible to calculate how many miles it would drive a tramcar or an electric train. Our electrical engineer informs me that the electricity supplied by the Liverpool Corporation in the year 1925 amounted to 167,409,433 units, and you might add another sixth for private manufacture in large works. I have no hesitation in hazarding the assumption that all the electricity used for medical purposes throughout England in ten years would not supply Liverpool for one hour, unless, perhaps, in the middle of the night, when deadly silence prevails, and only the street lamps are dimly shining. The Prime Minister had, therefore, better go on with his scheme until he gets more reliable evidence as to its superfluity.

In dealing with the lower motor neurone electricity seems almost permissible. In progressive muscular atrophy, bulbar paralysis, and amyotrophic lateral sclerosis you may say to the patient: "Some of your muscles are wasting and becoming weak; you must have some massage and electrical treatment to strengthen them, and I will give you some injections of strychnine in order to tone up your nervous system." Here, again, I think the condition of the vascular system is worthy of some consideration.

In an address which I gave in London in 1924 the following paragraphs occur:—

> "*Progressive Muscular Atrophy.*—The acute form of anterior poliomyelitis occurs chiefly in children, and is an infectious disease which usually affects the lower extremities; this special selection is probably due to a greater vascular supply to the lumbar enlargement of the cord.
>
> "The grey matter of the cord is supplied by the anterior spinal artery, and in early age the artery is very pliant and ready to supply the blood according to the demands of the part. In these cases the best treatment is absolute rest; elevate the hips and apply a spinal ice-bag over the lumbar and lower dorsal region of the cord. A febrifuge with *salicylate of sodium* is useful.
>
> "In later years progressive muscular atrophy is a degenerative lesion and affects chiefly the upper extremities, and is due to an insufficient supply of blood to the cervical enlargement. So far as my experience goes it occurs mostly in teetotallers and milk drinkers. The excessive supply of calcium leads to contraction and sluggish circulation in this small artery and its branches, with degeneration and calcification.
>
> "When the disease occurs it is too late to influence the *rigid vessel through the depressor nerve. The treatment,* therefore, should be preventive both in its origin and progressive character
>
> "I prefer claret and lemon squash to milk and hard water. Exercise rather than a life of ennui."

Dr. Buzzard concludes his sombre lecture as *follows*:—

> 'In this my first of three lectures I have chosen for discussion some disorders of nervous function the causes of *which we are powerless to influence or control.*"

I am now more than ever convinced that, owing to the hopeless and helpless muddle of therapeutics, the only salvation for the race consists in healthy breeding. *Mens sana in corpore sano*, and preventive medicine.

I am, Sir, yours faithfully,

Liverpool, Feb. 25th, 1926. JAMES BARR.

## FAMINES IN THE TROPICS.

*To the Editor of* THE LANCET.

SIR,—Famine at the present time in the Gabun, French Equatorial Africa, with, according to Dr. Albert Schweitzer, its attendant dysentery and "human beings who are mere skeletons and with terrible sores on their feet," invites attention to an onerous *phase of work* which falls at intervals to the medical man in the tropics. Records of past famines and the means employed for relief of distressed populations *accordingly are of* value to them, *in arriving* at decisions as to principles to be advised. In this spirit will doubtless be consulted the recently published "*History of India*" by Prof. *Dodwell, in which modern* famine relief measures as applied in India receive attention. But, "history as she is wrote" and facts of the past notoriously *are liable to differ, and, in this* case, I think it desirable, in common justice to the members of the Services employed under the Government of Madras and their many *philanthropic helpers* in the great famine of 1876–78, to point out that the scathing assertions made by the author at p. 79 of his work are not justified by the official documents[1] upon which he states he has relied for information.

After suggesting that "great variation in laxity nd strictness" in administration existed, he assigns Bombay the credit of prompt action in opening great relief works" and using special scrutiny as gratuitous relief. "*But,*" he states, "in Mysore d Madras attempts were made to encounter an lmost overwhelming disaster on the principles at had been applied to the scarcity in Behar, until e Viceroy Lytton had visited the scene in person nd secured the adoption of methods employed in ombay, which he perceived *were less wasteful not nly of the resources of the State, but also of human fe*" (italics not in the original). This would imply hat the Government of Madras were untrammelled by the Government of India from October, 1876, to August 20th, 1877, when the Viceroy made the personal visit specified; whereas, at the very origin of the famine, the Government of India not only claimed but insisted upon its absolute right of dictating the policy of the subordinate Governments of Madras and Bombay. As to Mysore, if matters there were inefficient, the Government of India was directly responsible, while so far as Madras is concerned, the author's statement of incidents is incorrect.

At the critical period as to the failure or not of the monsoon, in the *presence of stocks of grain* "held back" by the well-organised and astute Chetty caste of merchants peculiar to the Madras Presidency, with instantly resulting artificial famine prices, the Government of Madras desired to contract for the importation of 30,000 tons of rice to be held as a reserve. After seven days' delay in replying to telegrams on the subject, the Government of India, which in the Behar famine had countenanced the importation of 480,000 tons of grain, gave a flat refusal. This is the sole justification for the historian's allusion to the Behar "principles." The Government of Bombay were saved from facing the same "profiteer" *difficulty by splendid private* philanthropy. The Government of Madras had given to the Government of India timely warning of possibly impending famine, and definitely suggested concentration of labour on great works as "most necessary," but sanction was refused; (*a*) local petty works near villages solely were approved. This implied the *organisation of petty works to serve a population of* 20,000,000 scattered through 80,000 square miles.

These two refusals were followed by the Govern*ment of India deputing a delegate to the Madras* Presidency, armed with instructions which forcibly suggested economy. In the presence of famine prices and absence *of labour possibilities*, within six weeks of the delegate undertaking duty, as a result of his special method of elimination, (*b*) a reduction of 500,034 persons employed on relief works, or receiving gratuitous relief, was carried out. Against the protests of the then Sanitary Commissioner for the Government of Madras, Surgeon-Major (subsequently Surgeon-General) Cornish, C.I.E.—not only an expert sanitarian, but one who had for many years investigated specially and reported on Indian dietary—the wage on relief works was (*c*) reduced to the equivalent of one pound of grain with one half anna (say, three farthings) to cover the cost of condiments, essential pulses, fats, and antiscorbutics. Therefore, on a diet yielding 1010 calories[2] represented in rice (practically the only grain then available) per adult man, not only tasked labour but frequently, in addition, many miles of *march daily* to and from the relief works were demanded. From Jan. 31st, 1876, to May 22nd, 1877, this diet was in force, when, in view of strong public opinion, with the approval of the Secretary of State and the concurrence of the Government of India, it was withdrawn.

In para. 7 of his Minute of August 12th, 1877, the Viceroy conceded that the policy of his Government in forbidding large works at the origin of the famine was erroneous. In the meantime, the effort to close petty works opened as originally ordered accentuated the aimless wanderings and begging which resulted from policy (*b*), whilst the effect of policy (*c*) was to crowd the hospitals and relief camps with masses of men, women, and children rendered *absolutely* unfit for the work by *reason of malnutrition* A "trial census" within the famine area of the Madras Presidency showed that the united results of factors (*a*), (*b*), and (*c*) had been to bring about a decrease of 3,000,000 in the population under the heads of emigration, decline of birth-*rates*, and increase of deaths. It is possible to *show* that following consultation with the Government of Madras, strengthening of staffs and improvements in *details* of organisation were adumbrated *after* the visit of the Viceroy, but the fact remains that no human efforts could get rid of the effects of the false policy on which the campaign had been opened. Cornish, the sanitarian, had correctly protested that "in consideration of the fact that diseased conditions dependent on insufficient food follow many months after the cause has passed away, I apprehend that a heavy and unusual mortality will continue." The "practical" lay administrators who evolved the theory of merely sustaining life as distinct from fitness for labour, which should have been the goal, were confronted with the curious psychology and the *literally* irremediable state in subjects of prolonged chronic starvation, as contrasted with results in the acute form, which alone could have afforded any basis for their disastrous theories.

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[1] These are sufficiently found in the Famine Campaigns of uth India, by *Digby (two volumes)*, Longmans, 1878.

[2] Calculation for unpolished rice according to Plimmer.

If both the Presidencies of Madras and Bombay were subject to the overrule of the Government of India, and if, as was the case, in both, the European and Indian officials concerned worked in the interests of the saving of life to the limit of human endurance, and yet a difference in results is demonstrable, this was solely due to the latter Presidency in the early period of famine adopting Nelson's method when obeying the orders of the Government of India.

I am, Sir, yours faithfully,

W. G. KING,
Colonel, I.M.S. (ret.)

Hendon, N.W.

## STRICTURES OF THE URETHRA.

*To the Editor of* THE LANCET.

SIR,—I have read with great interest the article on Strictures in THE LANCET of March 6th by Mr. Girling Ball. In the main his description is admirable, but it does not advance the question of treatment far beyond that which was in vogue 15 or even 20 years ago. He only carries dilatations to 14/16 English—i.e., 24/27 Fr. Now it can be easily proved, by anyone who likes to take the trouble to make the observation, either on the cadaver or on the living subject under *efficient* local anæsthesia, that with the exception of the fossa navicularis and the external meatus the adult human urethra can be dilated easily to 45 Fr. (28 English). This observation was made in Germany years ago towards the end of the last century. It is so definite that I regard it as axiomatic that, if a urethra does not dilate to this calibre easily, it is the seat of an abnormality requiring closer investigation. In nine cases out of ten this abnormality will be found to be a stricture of large calibre which is quite capable of being treated and cured.

It is often impossible to detect such an early stricture with sounds because an instrument large enough could not pass the external meatus. The Kollmann, or similar expanding dilator, must be used. Again, if we are dilating a smaller stricture, why stop at 27 Fr. when it is possible to go on to 45, so much nearer the healthy natural size? Nature does not provide so large a canal for nothing, but it is impossible here to go into what I believe to be the reasons for this; suffice it to say that they are important and have a bearing on the health of the patient in later life.

Again, Mr. Girling Ball states that pain during the passage of instruments "can *sometimes* be avoided by the instillation of 2–4 per cent. novocaine." Now if efficient dilatation is to be carried out to the limits I have mentioned pain must be avoided *always*. Novocaine, whilst it is an admirable local anæsthetic when injected beneath the epithelium, is not good when applied to a mucous surface, as it lacks penetrating power. A 2–4 per cent. solution of cocaine is the only local anæsthetic possessing this power to a satisfactory degree, but its dangers negative its use except under special conditions. Fortunately, if the cocaine is combined with sodium bicarbonate, it is possible to obtain a solution which is of such low concentration that, in an experience of its use extending over many thousands of cases, I have never seen a single unpleasant symptom. The solution is a 0·5 per cent. solution of cocaine hydrochloride with a similar concentration of sodium bicarbonate, and it is a matter of standard routine to use it on every case in which I propose to pass instruments through the urethra. It gives all the anæsthesia that is required. Recently borocaine has been tried and the results are so far encouraging.

I am, Sir, yours faithfully,

H. L. ATTWATER, M.Ch., F.R.C.S.,
Assistant Surgeon to All Saints' Hospital

Wimpole-street, W., March 7th, 1926.

## HAGIOLOGICAL THERAPEUTICS.

*To the Editor of* THE LANCET.

SIR,—Your readers may be interested to hear of a method for testing a new remedy which was employed in the ninth century, and is recorded in the "Chronicon Turonense Magnum," a monkish chronicle probably of the twelfth century.

In 852 the Danes, under Rollo, threatened Tours, but as the floods prevented their attacking it they turned to Marmoutier (Majus Monasterium), about a mile up the Loire on the north bank, killed 116 monks, tortured the abbot to make him reveal the treasures, but in vain, and retired. As they threatened to return, the canons of Beatus Martin of Tours conveyed the body of the saint to Auxerre for safety. The result was a large increase in the miracles there, a large influx of pilgrims, and a large addition to the revenues of the Church of S. Germain, in which Martin's body was laid. The miracles were claimed by the canons of B. Martin to be his work, but the Auxerre clergy manfully (viriliter) asserted that they were the work of S. Germain. They agreed to test the question by laying a leper between the two saints and observing which side of him was cured. "Quid plura?" It was done, and the side next Martin was alone cured. But they very rightly thought that this experiment should be controlled. The leper was therefore reversed, and his diseased half, now next to Martin, was at once cured. "And so the strife between the clergy was set at rest and the offerings were from that time paid to the servants of B. Martin."

It is not surprising to learn that 31 years later, when times were quieter and the Tourangeois asked for Martin back again, the Bishop of Auxerre refused, and the saint was only recovered by an armed force led by Ingelger Count of Angers, the ancestor of the Angevin line. The progress of the body was marked by the healing of all the sick along the route, including those who were not brought in contact with it, those who did not implore the saint's help, and even those who did not want to be cured (inviti), which was recognised as a proof of the saint's unusual clemency. It may be added that though it was December the trees broke into leaf and flower.

I am, Sir, yours faithfully,

London, March 8th, 1926. W. P. HERRINGHAM.

## THE RISKS OF THE SAILOR.

*To the Editor of* THE LANCET.

SIR,—Many will be glad to note the prominence which is given regularly in THE LANCET to the exposure of seamen to gross defaults of social hygiene. When a ship comes into port its crew is regarded as the legitimate prey of prostitutes, the vendors of poisonous and doctored liquor, and the keepers of unlicensed lodging-houses. It is in evidence that in numerous cases prostitutes under treatment for venereal disease in its infectious stages in hospitals and infirmaries take their discharge from these institutions on the arrival of an expected ship in port, in order that they may be in readiness to meet the sailors as soon as they are paid off. In these circumstances it cannot be wondered that the number of cases of gonorrhœa and syphilis among seafaring men is rather high, and that sailors, having contracted the disease at one port, frequently spread the infection at the next calling station of their ship. If it were possible to provide healthy recreation in the open air with organised games such as football, hockey, &c., for these young men, experience teaches us that the infection rate would materially diminish. When the Contagious Diseases Acts were repealed in 1885 the number of cases of venereal disease in the Aldershot Command was about 327 per 1000. In 1911 it had diminished to a little more than 33 per 1000. This was mainly due to the efforts made by the officers, both combatant and medical, to provide out-door games, sports, and other recreations to give the soldiers some healthy occupation when off duty. Conferences are now being held in the seaport towns, and committees appointed, to promote the same state of affairs for seamen when on shore. Great and most valuable work is being done by the various organisations and associations which look after the welfare of sailors, but the coöperation of local authorities, athletic, and sporting clubs who have suitable grounds is required to make a success of the movement. If it were possible to meet and get hold of the boys and younger members of the crew on the arrival of a ship and offer them healthy and health-giving amusement, the number of risks of infection taken would be enormously reduced, with a corresponding decrease in the number of cases of disease. From a health point of view it is to be hoped that the members of our profession practising in seaport towns will, whenever possible, give their hearty support to this attempt to improve the health of our seafaring population. Measures are being taken in foreign seaports to provide the same facilities.

I am, Sir, yours faithfully,

London, March 8th, 1926. E. B. TURNER.

## THE INCIDENCE OF PHLEBITIS.

*To the Editor of* THE LANCET.

SIR,—I should be interested to know whether there has been a general increase in the number of cases of phlebitis of the veins of the lower limb during the past 12 months. In this district the number has been comparatively large and the history of each case similar—i.e., sudden onset with fever, a tendency to spread to the veins of the opposite limb, and a large proportion of pulmonary infarcts. In one case there occurred multiple cerebral emboli leading to extensive softening and progressive dementia. Since ordinary treatment appears to be quite ineffective in staying the course of the disease, a hint as to a specific bacterial origin would be valuable.

I am, Sir, yours faithfully,

JOHN WHITTINGDALE.

Sherborne, Dorset, March 8th, 1926.

## "IS CIVILISATION A FAILURE?"

*To the Editor of* THE LANCET.

SIR,—Your note on Sir Arbuthnot Lane's discourse upon the old question "Is Civilisation a Failure?" (asked long ago more poetically by Bret Harte) is most interesting, especially in the light shed upon it by Prof. John Dewey and Mr. Matthias Alexander. According to Sir Arbuthnot Lane, the failure of civilisation lies in an alteration of the simple mechanical relationship Nature intended us to maintain towards our surroundings, and this has caused alterations in human anatomy which have produced all the ills from which we suffer to-day. That the numerous and heavy calls which civilisation has made upon the human organism have resulted in failure to respond with sufficient rapidity to altered environment is an undoubted fact, and no doubt the lecturer obtained this information from Alexander's "Constructive Conscious Control," with which I know him to be acquainted. One fails to see, however, what "alterations in human anatomy" this failure either could cause or has caused in the short period during which man has been civilised. That it has resulted in serious *wrong functioning*, both in body and mind, is what Alexander has insisted upon in the work mentioned, and it is nowhere better seen than in the attitude of most of our lecturers on health to-day. What Alexander has done is to find a specific remedy for this wrong functioning in his technique of re-education.

I am, Sir, yours faithfully,

MACLEOD YEARSLEY.

Wimpole-street, W., March 4th, 1926.

## A HUGE EMPYEMA.

*To the Editor of* THE LANCET.

SIR,—I was particularly interested in the letter of Mr J. Cæsar, in the last issue of THE LANCET, giving the notes of two cases of empyema. The evacuation of eight pints of pus by the aspirator at one sitting is not quite a record, as I have myself drawn off over nine pints in a similar case. The notes of this case are, I think, of interest, in that the patient's symptoms were not sufficiently severe for him to consider himself ill enough to "report sick," until he was in a really serious condition.

While acting as ship's surgeon I was summoned to the forecastle to see a fireman aged 41. Temp. 103·5° F.; pulse, 140. There was an area of dullness extending from the right lower costal margin to the fifth intercostal space. I diagnosed pleural effusion, and the next morning I introduced a needle, under novocaine anæsthetic, in the eighth intercostal space, and was amazed when I drew off nine and a half pints of foul-smelling pus. Within an hour his temperature had fallen to 101° and his pulse-rate had become 110 per min. Two days later, on reaching port, I sent him to hospital. Six months afterwards I met him, and he told me that he had made an uninterrupted recovery in hospital, where he remained only 15 days, and, since his discharge from the hospital, had made a trip to the River Plate and back.

I am, Sir, yours faithfully,

D. GORDON ROBINSON,

Late Surgeon, Ellerman's Wilson Line.

Hull, March 5th, 1926.

## A DIAGNOSTIC SKIN REACTION FOR TYPHOID.

*To the Editor of* THE LANCET.

SIR,—The value of the Dick test as a diagnostic agent in scarlet fever consists in its ability to exclude the possibility of scarlet fever in those who fail to react. If the reaction to a Dick test be positive the patient may still not have scarlet fever. The test is therefore of limited value in the case of scarlet fever. But we may suppose that in England, at least, the great majority of the population are susceptible to typhoid fever, and it is therefore probable that were a skin sensitivity test, on the principle described in your annotation of Feb. 6th, ever perfected it would be of very little diagnostic value.

I am, Sir, yours faithfully,

Ohio, Feb 19th, 1926. J. ROSSLYN EARP.

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SUSSEX EYE HOSPITAL.—The year 1925 marked the ninety-third anniversary of the Sussex Eye Hospital in Queen's road, Brighton. The governors are continually faced with financial difficulties, and with the strictest economy in every department the year 1925 ended with a deficit of £301. Legacies fortunately liquidated this sum and left a little over. It was pointed out, however, at the annual meeting of the governors on Feb. 10th, that at least another £300 a year was required if current expenses were to be paid out of current income. There is an overdraft of £171 due to the bank, and at least £1000 is needed to place the institution in a proper state of repair. The work continues to grow. In 1910 there were 211 in-patients during the year and 2572 out-patients; in 1925 the figures were 350 and 1005 respectively. A statute having been altered so as to permit the election of more than one patron, the Duke of Richmond and Gordon and the Earl of Chichester have been elected.

# Obituary.

## WILLIAM CHARLES SULLIVAN, M.D.R.U.I.,

MEDICAL SUPERINTENDENT OF BROADMOOR.

THE death, which occurred on March 1st, of Dr. William Sullivan, the medical superintendent of Broadmoor Criminal Lunatic Asylum, removes from the Government service a highly valued officer, while we shall no longer have the opportunity of putting before our readers his strong but well-balanced views on many of the medical questions which came within his special cognisance.

William Sullivan, the youngest son of Dr. W. K. Sullivan, a President of Queen's College, Cork, was born in 1869 and educated in Cork and Dublin. He graduated in medicine at the Royal University of Ireland in 1891, being later Stewart scholar in mental diseases, and then spent a considerable time in Paris, where he obtained his accurate acquaintance with French work in psychiatry. He decided to enter the prison service and his first appointment was in H.M. Prisons Liverpool, but he afterwards held office at Parkhurst, Holloway, and Pentonville. He was then appointed medical superintendent of the State criminal lunatic asylum at Rampton, a post which he held until he succeeded to the superintendency of Broadmoor in 1920, upon the retirement of Sir Richard Brayn.

He came prominently before the public as a member of the Advisory Committee appointed in 1916 by the Central Control Board (Liquor Traffic) to consider the conditions affecting the physiological action of alcohol. The particular reference of this Committee was to report upon the effects of health and industrial efficiency induced by the consumption of beverages of various alcoholic strength. The Committee was strongly composed with Lord D'Abernon as chairman, the others members being the late Prof. Cushny, Dr. H. H. Dale, Dr. M. Greenwood, Dr. W. McDougall, Sir George Newman, Sir Frederick Mott, Sir Charles Sherrington, and Sullivan, and to Sullivan personally much of the credit of the work done is due, for it was largely through him that the necessity for fundamental change in the hours during which public-houses may remain open became recognised as a necessity. The long afternoon break in public-house hours has led to a decrease alike in drunkenness and alcoholic morbidity, and none of the critics of the reform—there were and are many—have ever been able to gainsay the advantages obtained. Sullivan's presence on the Committee was due partly to a general appreciation of his administrative work among two classes where alcohol produces disastrous ravages, but particularly to the accurate information and sound views which he had placed before the public some ten years previously in a treatise on the whole subject of alcoholism, regarded as a chapter in social pathology.

Sullivan was a man of high literary ability, and his lectures on criminology and forensic medicine, delivered at the Maudsley Hospital, his editorial writing in THE LANCET and his contributions to the *XIX. Century and After*, and various home and foreign organs, all displayed an easy erudition and a power of speaking clearly as well as emphatically. These qualities were marked in his valuable treatise "Crime and Insanity" written after he had been superintendent at Broadmoor for four years. The subject bristles with difficulty; medicine is everywhere involved in a controversial manner, while legal positions are often hard to appreciate. But Sullivan's treatment is fair as well as clear; his commonsense views were based on his scientific grasp of the problems, and his urbanity was due to a recognition of difficulties and not to any facile compromises.

Dr. Sullivan had been for a short time in delicate health, but the end came unexpectedly. He leaves a widow, herself an accomplished author, by whom he had one son.

## SUTHERLAND SIMPSON, M.D., D.Sc. EDIN.

THE death of Prof. Sutherland Simpson on March 3rd at his home at Ithaca, New York, ends a very remarkable career. Born in Orkney in 1863, Simpson left home whilst still fairly young and found his way south to Leith, where he answered an advertisement of Prof. William Rutherford's for a laboratory assistant in the department of physiology in the University of Edinburgh. His application was successful, and Prof. Rutherford soon discovered that his new assistant had ambitions and merits far beyond his position. Accordingly, Simpson was encouraged to attend classes at the Heriot Watt College in Edinburgh and very rapidly passed the preliminary examinations which qualified him to start on a scientific career. Next Rutherford made it easy for him to go to the University lectures, and in 1894 the laboratory assistant became a Bachelor of Science at the age of 31. With this success, however, he was by no means content. He asked permission to attend the medical courses, qualified in 1899, and in 1901 graduated as M.D., being awarded the gold medal for his thesis. In 1903 he became a Doctor of Science as well. And all this was achieved whilst Simpson was daily occupied in the laboratory and assisting the professor in his lectures. In the laboratory, of course, his status soon improved. He gained the Crichton Research Scholarship in Physiology, was elected Goodsir Memorial Fellow in Anatomy and Physiology, and, later, became lecturer in experimental physiology and assistant to the professor. During these Edinburgh days he found time for original work on secondary degeneration following injury to the cerebral motor cortex, on the pyramidal tracts, and on the regeneration of temperature. In the first decade of the twentieth century opportunities for young physiologists and pharmacologists presented themselves in colleges in the United States, and in 1908 Simpson was elected professor of physiology in the University of Cornell, a post he held until his death. There he gave himself up to teaching and research, and he and his pupils, amongst other contributions, published memoirs on the effects of excising the thyroid gland. Prof. Simpson married in 1908 Catherine G. P. Anderson, of Edinburgh.

## JOHN ALFRED SCOTT, M.D. DUB., F.R.C.S.I.

Dr. J. A. Scott, professor of physiology in the School of the Royal College of Surgeons in Ireland, who died on March 6th in his seventy-first year, was at work until the evening of his death. For the last year or two it had been clear that Dr. Scott was in failing health, but he sought no medical advice and worked hard.

John Alfred Scott was born in Dublin, and received his medical education at the Ledwich and Carmichael medical schools in that city. He qualified in 1881 and subsequently graduated in medicine at Dublin University; in 1886 he became a Fellow of the Royal College of Surgeons in Ireland. Soon after qualification he devoted himself to the study of physiology, and was appointed professor in the Carmichael School. In 1889, when the school was amalgamated with the school of the College of Surgeons, he became professor of physiology in the College, and he continued in this post to the day of his death. He was also for a long time pathologist to the Adelaide Hospital, and for some ten years acted as general secretary of the Royal Academy of Medicine in Ireland, contributing frequently to its communications. Prof. Scott was greatly interested in photography, and was an excellent photographer himself. Amongst his other interests was zoology, and for many years he was a member of the Council of the Royal Zoological Society of Ireland, being indefatigable in his work on behalf of the society and its gardens. As a teacher he was painstaking, clear, and forcible. He had the great gift of interesting his class, and he seemed able to enter into the difficulties of a student. His students came to love him as a friend who gave them unsparingly of his best.

# Parliamentary Intelligence.

## HOUSE OF COMMONS.

### WEDNESDAY, MARCH 3RD.

### *Mortality from Small-pox and Encephalitis Lethargica.*

Mr. COMPTON asked the Minister of Health to state what had been the percentage of mortality in the years 1924 and 1925 in small-pox and encephalitis lethargica, respectively.—Mr. NEVILLE CHAMBERLAIN replied: The case mortality rates—i.e., deaths per 100 notified cases, were: Small-pox, 0·35 per cent. in 1924 and 0·17 per cent. in 1925; encephalitis lethargica, 27·0 per cent. in 1924 and 50·0 per cent. in 1925 (The figures for 1925 relate to the first three-quarters of the year.)

### *Service Tuberculosis Cases and Insurance Benefit.*

Dr. VERNON DAVIES asked the Minister of Health if men invalided from the Army, Navy, or Air Force, suffering from pulmonary tuberculosis, were granted benefits under the National Health Insurance Act; and, if so, what were these benefits.—Mr. NEVILLE CHAMBERLAIN replied: All men serving in the forces of the Crown are insured under the National Health Insurance Act, and on discharge become entitled, subject to the ordinary conditions, to all the normal benefits of the Act—viz., medical, sickness, disablement, and maternity benefits. Further, any discharged man who has been for the necessary qualifying period a member of an approved society which provides additional benefits, becomes entitled to participate in such additional benefits. These additional benefits may take the form of an increase of the standard rates of sickness, disablement, and maternity benefits, or payment towards the cost of treatment of various kinds—e.g., dental, ophthalmic, hospital, or convalescent home treatment.

### *Small-pox and Vaccination.*

Mr. NUTTALL asked the Minister of Health the number of cases of small-pox reported in England and Wales since Jan. 1st last, and the number of non vaccinated persons who had contracted this disease.—Mr NEVILLE CHAMBERLAIN replied: During the seven weeks ended Feb. 20th, 1926, 2200 cases of small-pox were notified in England and Wales. Of these cases 1090 are stated to have been unvaccinated prior to infection by small-pox, while in 13 instances information as to the vaccinal condition is not yet available. These figures are subject to revision.

### *League of Nations Health Conference.*

Mr. TREVELYAN THOMSON asked the Minister of Health whether the English doctors who attended the conference of the commission of members of the Health Committee of the League of Nations at The Hague from Jan. 4th to the 7th to examine questions in connexion with small-pox, alastrim, and vaccinia, were present as representatives of the English Ministry of Health; and, if not, in what capacity were they there.—Mr. NEVILLE CHAMBERLAIN replied: This conference was convened by the Health Committee of the League of Nations. Sir George Buchanan attended in his capacity of British representative on that Committee. Dr. Gordon and Dr. Blaxall were invited by the Committee as experts possessing special knowledge and experience of the subjects to be discussed.

### *Geneva Opium Convention.*

Mr. CAMPBELL asked the Secretary of State for Foreign Affairs which of the powers had ratified the Opium Convention, which was signed at Geneva in February, 1925.—Sir AUSTEN CHAMBERLAIN replied: So far as H.M. Government are aware, no foreign power has yet ratified either the Opium Agreement or the Dangerous Drugs Convention, signed at Geneva on Feb. 11th and Feb. 19th, 1925, respectively. The British ratifications of the Agreement and Convention were deposited with the League of Nations on the 17th ultimo.

### THURSDAY, MARCH 4TH.

### *Cost of Tuberculosis Sanatoria.*

Dr. WATTS asked the Minister of Health the total amount expended on the provision of sanatoria for the treatment of tuberculosis in England and Wales; the annual cost of upkeep; the number of cases treated; and the percentage of cures claimed.—Mr. NEVILLE CHAMBERLAIN replied: The total capital expenditure incurred by local authorities in England and by the King Edward VII. Welsh National Memorial Association on the provision of residential institutions for the treatment of tuberculosis is approximately £1,100,000; the annual cost of the residential treatment of patients under the tuberculosis schemes of local authorities in England and Wales is approximately £2,312,000; and the average number of cases under treatment at any one time is approximately 18,850. As regards the last part of the question, I regret that no figures are at present available for the country as a whole, but I may refer my hon. friend to the report issued by the Medical Research Council (Special Report Series, No. 85) as to patients treated in the Frimley sanatorium.

### *National Health Insurance Report.*

Mr. RHYS DAVIES asked the Minister of Health whether it would be necessary to introduce legislation to give effect to any or the whole of the recommendations of the Royal Commission on National Health Insurance; and, if so, when it was intended to introduce such legislation.—Mr. NEVILLE CHAMBERLAIN replied: It would be necessary to introduce legislation to give effect to many, but not all, of the recommendations of the Royal Commission on National Health Insurance. I am not in a position to make any statement as to the introduction of such legislation.

### *Voluntary Hospitals Commission.*

Mr CAMPBELL asked the Minister of Health whether, in view of the decision of the Government not to adopt the recommendation of the Voluntary Hospitals Commission to provide, out of public funds, additional beds in voluntary hospitals, it was proposed to continue that Commission; and, if so, what duties remained for it to discharge.—Mr. NEVILLE CHAMBERLAIN replied: Yes, Sir. I have asked the Commission to continue their work both to act as a link between the Government and the voluntary hospitals, and also to keep in touch with the local voluntary hospital committees throughout the country and facilitate communication between them. The Commission will advise me on questions relating to voluntary hospitals, and will collect and circulate information likely to be of assistance to local committees, such as the circular on hospital construction now in course of preparation

### *Sterilisation of Milk.*

Lieut.-Colonel FREMANTLE asked the Minister of Health whether tubercle bacilli in milk were killed by sterilisation or pasteurisation as generally carried out; and whether he was aware of any means of killing tubercle bacilli in milk other than by sterilisation or pasteurisation.—Mr. NEVILLE CHAMBERLAIN replied: I am advised that pasteurisation carried out in accordance with the procedure laid down in the Milk (Special Designations) Order confers a very substantial protection against infection by tubercle bacilli. It is probable that the process commercially described as sterilisation affords similar protection, and that this is true in a smaller degree of other methods of treating milk by heat. I am not aware of any other practicable means of killing tubercle bacilli in milk.

Colonel FREMANTLE asked the Minister of Health the proportion of milk estimated to be tuberculous from analysis of samples in London, Birmingham, Manchester, Edinburgh, Leeds, Liverpool, Plymouth, Cardiff, Hull, and Newcastle, respectively.—Mr NEVILLE CHAMBERLAIN replied: So far as the question relates to Edinburgh it should be addressed to my right hon. friend the Secretary for Scotland. The following is a statement of the number of samples of milk taken in certain towns in England and Wales during 1924 for examination for tubercle bacilli and number found to be tuberculous:—

| Place. | Samples taken. | Samples tuberculous. | Percentage tuberculous. |
|---|---|---|---|
| London (City) .. | 39 | 5 | 12·8 |
| London (County) .. | 2400 | 121 | 5·0 |
| Birmingham .. | 303 | 26 | 8·6 |
| Manchester | 590 | 48 | 8·1 |
| Leeds .. | 68 | 1 | 1·5 |
| Liverpool .. | 781 | 79 | 10·1 |
| Plymouth .. | 11 | 2 | 18·2 |
| Cardiff.. .. | 53 | 1 | 1·9 |
| Kingston upon Hull .. | 18 | nil. | nil. |
| Newcastle-upon-Tyne | 220 | 7 | 3·2 |
| — | 4483 | 290 | 6·5 |

### *Mental Deficients and Assaults on Children.*

Mr. BRIANT asked the Minister of Health if his attention had been called to the case of a lad of 17 who was mentally deficient and was charged at Stratford, E., police-court with an assault on a child of five; if he was aware that the same lad was charged with a similar offence on a previous occasion but, owing to the failure to find a suitable home, was discharged; and if he would see that sufficient homes were provided for these cases so that deficients who were a danger to children should not be allowed to repeat their offences.—Mr. NEVILLE CHAMBERLAIN replied: The answer to the first two parts of the question is in the affirmative. In regard to the latter part of the question, I have already informed the Board of Control that they should press local authorities to fulfil their duty under the Mental Deficiency Act of providing suitable and sufficient accommodation for mental defectives ordered to be sent to institutions. As regards the particular case, the Board of Control have agreed, in the exceptional circumstances, that if the court orders this youth to be sent to an institution, he can be received into the State institution at Rampton, which has been provided for mental defectives of dangerous or violent propensities.

### *Approved Societies and Convalescent Treatment.*

Mr. Briant asked the Minister of Health if, in considering the distribution of surpluses of approved health societies, he would take into account the necessity of the provision of sufficient convalescent homes and the granting of full maintenance allowances for the families dependent on the sick persons, so as to ensure that the patients took full advantage of convalescent treatment till full recovery was reached.—Mr. Neville Chamberlain replied: It rests with each approved society having a disposable surplus on valuation to decide what additional benefits are to be provided for its members out of that surplus. Among such benefits are included the provision and maintenance of premises suitable for convalescent homes, and the payment of the whole or part of the cost of maintenance and treatment of members in convalescent homes, the latter of which is one of the most widely adopted benefits. I am satisfied that societies generally are fully alive to the advantages of convalescent home treatment. There is no provision in the Act for the payment of maintenance allowances for the dependants of sick persons, but while an insured person is being maintained in a convalescent home he would ordinarily be entitled also to sickness or disablement benefit, which would be available towards the cost of the maintenance of his dependants.

### *Industrial Accidents in 1925.*

Lord Henry Cavendish-Bentinck asked the Home Secretary the total number of industrial accidents, fatal and non-fatal, reported during 1925.—Sir William Joynson-Hicks replied: The total number of persons reported as killed during 1925 by industrial accidents in factories, docks, and other premises under the Factory Acts, in mines and quarries, and in the railway service, was 2471. The number reported as injured by accidents on premises under the Factory Acts was 158,778. The figures as to non-fatal accidents in the other industries mentioned are not yet available, and the figures just given are provisional.

## FRIDAY, MARCH 5TH.

### *Physical Defects of Naval Recruits.*

Mr. Hore-Belisha asked the First Lord of the Admiralty what percentage of applicants was rejected for the Navy in the years 1910, 1911, 1912, 1913, and 1925; and what the principal physical defects were, giving the proportions to the total number of rejections.—Mr. Davidson replied: Statistics as regards rejections for physical defects are not available for the years 1910 to 1913. The percentage rejected in 1925 was 37, and of the candidates rejected by the final medical examining officers the principal defects were:

| Defect. | Proportion to total of rejections. |
|---|---|
| Defective vision .. .. .. .. | 19·39 per cent. |
| Defective teeth .. .. .. .. | 12·66 „ |
| Disease of heart .. .. .. .. | 8·75 „ |
| Flat-foot .. .. .. .. | 8·41 „ |
| Disease of ears .. .. .. .. | 7·61 „ |

The preparation of similar statistics for candidates who were not sent to the final medical examining officers would involve an expenditure of clerical work which I do not think would be justified.

### *Medical Adviser at the Colonial Office.*

Mr. Walter Baker asked the Secretary of State for the Colonies whether he was now in a position to state his decision regarding the proposal to appoint a medical director in the Colonial Office to act as a liaison officer between the Crown Colonies and the Civil Research Committee.—Lieut.-Colonel Headlam asked a similar question.—Mr. Amery replied: I propose at an early date to appoint in the Colonial Office a chief medical adviser whose duty it will be to advise me on all medical and health questions and to see that all important information bearing on these matters is collected and circulated.

### *Deaths from Infectious Diseases.*

Mr. Whiteley asked the Minister of Health how many deaths from influenza, measles, diphtheria, scarlet fever, and enteric fever were registered in the year 1925.—Mr. Neville Chamberlain replied: Reliable figures are not yet available, but the provisional figures derived from the Registrars' Quarterly Returns, are as follows:

| Disease. | Provisional No. of deaths registered in England and Wales, 1925. |
|---|---|
| Influenza .. .. .. .. .. | 12,587 |
| Measles .. .. .. .. .. | 5,221 |
| Diphtheria .. .. .. .. | 2,716 |
| Scarlet fever .. .. .. .. | 981 |
| Enteric fever .. .. .. .. | 373 |

Mr. Whiteley asked the Minister of Health whether he would state the provisional number of cases of diphtheria, scarlet fever, chicken-pox, pneumonia, enteric fever, small-pox, and encephalitis lethargica notified during the year 1925.—Mr. Neville Chamberlain replied: The figures asked for, with the exception of those for chicken-pox, which is not universally notifiable, are as follows:

| Disease. | Provisional No. of cases in England and Wales, 1925. |
|---|---|
| Diphtheria .. .. .. .. | 47,723 |
| Scarlet fever .. .. .. .. | 91,357 |
| Pneumonia .. .. .. .. | 55,960 |
| Enteric fever .. .. .. .. | 2,779 |
| Small-pox . .. .. .. .. | 5,363 |
| Encephalitis lethargica .. .. .. | 2,637 |

## MONDAY, MARCH 8TH.

### *Restrictions on Opium Production in India.*

Mr. Campbell asked the Under Secretary of State for India what new policy had been propounded by the Government of India in regard to the production and export of Indian opium.—Earl Winterton replied: In opening the Council of State on Feb. 9th the Viceroy made the important announcement that the Government of India intends, subject to the approval of the legislature, to reduce progressively the export of opium to all destinations so as to extinguish the trade altogether within a definite period except for strictly medical purposes. This policy would involve a corresponding reduction in the amount of opium produced. The period within which extinction will take place has not yet been fixed, and the position of the cultivators is one of the factors that must be taken into account in defining it. The new policy, if approved by the Indian legislature, would go far beyond the international obligations of India, and the Government of India, in proposing it, have been animated by a determination to do all in their power to coöperate to secure that improvement in the world opium situation which was looked for as a result of the Geneva Conference.

### *Air Force Medical Services.*

The votes for personnel, pay, stores, buildings, and land in connexion with the Royal Air Force were considered on report.

Mr. Basil Peto said that he had been looking into the separate medical staff of the Air Ministry. He found that the total of the medical staff was 1377, and the gross cost was £347,500, or, deducting all that was allowed for the part of the medical staff that was paid for under other Ministry votes, it was £209,000 net. The real figure, of course, was £347,500, and the 1377 members of the medical staff worked out at one for every 26 of the whole personnel of the Air Service in Vote A. There were only 920 flying and observer officers this year, or 134 less than last year, and the 1377 medical staff seemed to compare very unfavourably with the total number of flying and observer officers.

Sir Samuel Hoare (Secretary of State for Air) said that they were trying, even with the existence of the three Services—the Army, Navy, and the Air Force—to reduce overlapping to the lowest possible limit. [Sir F. Wise: "Hospitals."] They did not want to set up hospitals anywhere where Army and Navy hospitals were providing treatment for Air Force officers and men. To-day, in England, there were only three Air Force hospitals. In each case these were provided where there were no other facilities for the officers and men of the Air Force in the near neighbourhood. There were two hospitals for men and one hospital for officers. In Iraq, where the command was an Air Command, and where the main responsibility was an Air Ministry responsibility, there were no Army hospitals, and the Air Force hospital in Iraq was doing all the work for the British and Indian battalions. He would like to see the arrangement pushed and developed to the full.

In the previous debate a few days ago Lieut.-Commander Kenworthy had twitted the Air Ministry about a dental service. They had no dental service at all. They used the dental officers of the Royal Army Medical Corps. Right through the whole field of common service it was their definite policy, and he could not emphasise that too much, to avoid duplication wherever they could.

Capt. Crookshank said that the House was extremely gratified to hear the promise of the Secretary of State to look into the matter of the doctors and the nurses. Naval nurses did not go to the sea in ships, and air nurses did not go into the air. Why should they not be brought from a common school?

The votes were agreed to.

# Medical News.

UNIVERSITY OF OXFORD.—The Weldon Memorial prize has been awarded to Dr. Major Greenwood. The prize is given once every three years to the person who has published, during the past six years, the most noteworthy contribution to biometric science.

MEDICO-LEGAL SOCIETY.—A meeting will be held at 11, Chandos-street, Cavendish-square, London, W., on Tuesday, March 16th, at 8.30 P.M., when Dr. Knyvett Gordon will read a paper on Fur Dermatitis.

HARVEIAN SOCIETY.—An ordinary meeting of this society will be held at Paddington Town Hall on Thursday, March 18th, at 8.30 P.M., when there will be a discussion on the Use of Ultra-violet Rays in Medicine and Surgery, to be opened by Dr. Leonard Hill, followed by Dr. W. T. O. Pugh.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES.—On March 26th a meeting is to be held at 11, Chandos-street, London, W., at 8.30 P.M., when Dr. George Riddoch and Dr. P. Panton will contribute papers on Marriage and Syphilis. Consideration of this subject will be resumed at the same hour on April 30th, when the speakers will be Dr. Lacapere and Dr. R. C. Jewesbury.

CONFERENCE ON MATERNITY AND CHILD WELFARE. The fourth English-speaking conference on Maternity and Child Welfare is to be held, in connexion with the National Baby Week celebrations, at the Caxton Hall, Westminster, from July 5th–7th. The main subjects of discussion will be the care of the toddler, the care of the mother (expectant, at confinement, nursing, postnatal), and the father's part in the child welfare movement. There are to be lectures, film displays, an exhibition, social functions, and visits to child welfare institutions. Applications for tickets should be addressed to the hon. secretary, National Association for the Prevention of Infant Mortality, Carnegie House, 117, Piccadilly, London.

SCHOLARSHIPS AND GRANTS FOR SCIENTIFIC RESEARCH.—The Council of the British Medical Association is prepared to receive applications for an Ernest Hart Memorial Scholarship of £200 per annum, for the study of some subject in the department of State Medicine, and for three research scholarships, each of £150 per annum, for research into some subject relating to the causation, prevention, or treatment of disease. Each scholarship is tenable for one year, from Oct. 1st, 1926. A scholar may be reappointed for not more than two additional terms, and may hold a junior appointment at a university medical school or hospital, provided that the duties do not interfere with his work as a scholar. The Council will also receive applications for grants for the assistance of research into the causation, treatment, or prevention of disease. Preference will be given, other things being equal, to members of the medical profession and to applicants who propose as subjects of investigation problems directly related to practical medicine. Applications for the scholarships and grants must be made in proper form before June 5th. The conditions of their award are stated in the regulations, which may be had from the Medical Secretary, British Medical Association House, Tavistock-square, London, W.C. 1

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION.—Mr. H. W. Carson will lecture for the Fellowship on Hernia on Thursday, March 18th, at 5 P.M., in the lecture hall of the Medical Society, 11, Chandos-street, London, W. This lecture will be free to members of the medical profession. From March 15th to 27th the Brompton Hospital will hold an all-day course dealing with various forms of pulmonary diseases by demonstration, lecture, and operation. At the London School of Hygiene and Tropical Medicine demonstrations will be given twice weekly in the afternoons by Dr. G. C. Low and Dr. P. H. Manson-Bahr, from March 16th, for four consecutive weeks. For the convenience of general practitioners the Hampstead General Hospital has organised an afternoon course (4.30 to 6) to cover systematic teaching in all departments. From April 14th to May 5th Dr. C. B. Heald will give four lecture-demonstrations at the Royal Free Hospital on successive Wednesdays at 5.15 P.M. on the Recent Advances in Medical Electrical Treatment. An intensive post-graduate course in proctology is to be given at St. Mark's Hospital from April 19th to 24th. Sessions will be from 10.30 A.M. to 6 P.M. daily, including Saturday. Early application is requested, as the course will not be given unless ten entries are received by April 12th. Copies of all syllabuses, of the general course programme, and of the *Post-Graduate Medical Journal*, may be had on application to the Secretary of the Fellowship, at 1, Wimpole-street, London, W. 1.

ROYAL FREE HOSPITAL EXTENSION.—A new wing is to be added at an estimated cost of £50,000.

KING'S COLLEGE HOSPITAL.—It is intended during the year to open another ward containing at least 21 beds. The beds available for general patients now number 267 out of a total of 388, but 63 are available for paying patients.

SOCIETY FOR THE STUDY OF INEBRIETY.—The annual meeting of this society will be held at 11, Chandos-street, Cavendish-square, London, W., on Tuesday, April 13th, at 4 P.M. After the election of officers Sir William Willcox will open a discussion on the Prevention and Arrest of Drug Addiction.

THE LATE MR. W. PERMEWAN.—We regret to announce the death on March 9th, at Liverpool, at the age of 61, of Mr. William Permewan, consulting surgeon to the Royal Southern Hospital, and lecturer in laryngology in the University of Liverpool.

NORTH-WESTERN TUBERCULOSIS SOCIETY.—A meeting of this society will be held in the surgical theatre of the Medical School, Liverpool, on Thursday, March 18th, at 8 P.M., when Dr. J. G. Adami, the Vice-Chancellor of the University, will read a paper. Medical practitioners and students are cordially invited.

LONDON HOSPITAL MEDICAL COLLEGE.—The *Hutchinson Triennial Prize of £60* will be awarded to a qualified student of the London Hospital, who has been registered for not more than 10 years, for a dissertation on Suppuration in the Lungs and Pleura, to be sent in not later than March 31st, 1929.

ST. MARY'S HOSPITAL, PADDINGTON.—A "Pound Day" will be held on March 18th, when Princess Marie Louise will receive purses at 3.30 P.M. Members of the Ladies Association will be at the hospital on March 17th and 18th, from 9 A.M. to 7 P.M., to accept gifts in kind. Cheques or money may be sent to Mrs. Wilfred Harris, 50, Wimpole-street, London, W. 1.

DISTRICT NURSING IN LONDON.—The Central Council for District Nursing in London reported at its annual meeting that in the Administrative County of London there is one district nurse for every 18,120 of the population. No further provision can be made at present owing to lack of money, but extensions are taking place in Greater London.

CHELSEA CLINICAL SOCIETY.—A meeting of this society will be held on Tuesday, March 16th, at 8.30 P.M., at the Florence Restaurant, Rupert-street, London, W., when there will be a discussion on Spa Treatment. Amongst the speakers will be Dr. W. Edgecombe, Dr. Malcolm Campbell, Dr. Matthew B. Ray, Dr. Violle (Vittel), Dr. Debidour (Mont d'Or), and Dr. Ferreyrolle (La Bourboule). Dinner will be served at 7.30 P.M., before the meeting.

ROYAL INSTITUTE OF PUBLIC HEALTH.—A congress will be held at Bristol from May 19th to 24th (Whitsuntide). An interesting and varied programme has been prepared; the railway companies have agreed to reduce the fares of those attending the congress, and hotel or boarding-house accommodation can be arranged for early applicants. Information may be had from the hon. secretary of the Royal Institute, 37, Russell-square, London, W.C. 1.

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of this society will be held at 1, Upper Montague-street, Russell-square, London, W.C., on Friday, March 19th, when there will be a discussion on Cancer from the point of view of: (*a*) public health administration (Dr. W. D. Champneys); (*b*) the surgeon (Prof. G. E. Gask); (*c*) the research worker (Dr. W. D. Newcomb); (*d*) the general practitioner (Dr. F. E. Allen). Others who will take part in the discussion are Mr. C. J. Bond and Lieut.-Col. A. B. Smallman (Ministry of Health). The President (Dr. G. F. Buchan) will take the chair at 5 P.M., and the meeting will be open to any member of the profession.

THE LATE DR. LEIGH COX.—Dr. Wilfred Leigh Cox, who died on Feb. 28th of blood poisoning after a ten day's illness, came of a family with a medical tradition. His father is Dr. Percy Cox, of Ealing, and his grandfather practised in Manchester. Dr. Cox, who was only 38 years of age, was born at Bowdon in Cheshire, and studied at Manchester and the Middlesex Hospital, where he qualified in 1915. In the early days of the war he was attached to the Anglo-French American Hospital in Paris. Returning to England in 1916, he offered his services again to the R.A.M.C., but was refused on account of ill health. He freed another medical man for war service and was granted an hon. commission in the R.A.M.C. When the war was over Dr. Cox settled in practice at Southbourne, Hampshire, where he earned a high reputation. His funeral, on March 3rd, was attended by a large gathering of friends.

James Mackenzie Institute for Clinical Research.—A post-graduate course of 50 lectures and demonstrations for general practitioners will be held at the Institute, St. Andrews, from June 14th to 30th. Particulars may be had from the Secretary.

Nottingham Medico-Chirurgical Society.—On Feb. 18th Dr. Leonard Williams read a paper on Endocrinology and Old Age, and on Feb. 25th Sir George Newman addressed the Society on the Relation of the State to Medicine.

Hospital, Health, Nursing, and Midwifery Exhibition and Conference.—A section dealing exclusively with the work of voluntary organisations is to be included at the annual conference and exhibition to be held from April 12th to 16th, from noon till 8 p.m. daily, at the Central Hall, Westminster.

Course in Hospital Administration. — Dr. E. W. Goodall, medical superintendent, will begin a course on hospital administration at the North-Western Hospital, Metropolitan Asylums Board, on April 8th. The course, which is designed for candidates for the D.P.H. and will include clinical instruction in infectious fevers, will continue for three months, on Mondays and Thursdays at 1.15 p.m. and on alternate Saturdays at 10.30 a.m.

British Social Hygiene Council. — A new quarterly review called *Health and Empire*, published for the Council by Constable and Co., is to appear this month, and will appeal to the public as well as to medical and social workers. It will describe experiments in educational methods, and its aim is to correlate new developments in psychology, biology, and physiology with special social problems.

Home for New Health Society.—Mrs. Henry Allhusen, late of Stoke Court, Stoke Poges, has given £4000 to establish a National Home of Health as the head-quarters of the New Health Society. The gift is made so that the society's central offices shall be "a lasting memorial to her husband and her children, Harry and Elizabeth, in the hope that the work of the society, in its teachings of the laws of health to the public, will preserve the lives of others equally dear to their relatives and friends."

Distribution of Insulin by Local Authorities. The Scottish Board of Health has sent out circulars to local authorities reminding them that they are now empowered to provide insulin for diabetics in their areas who cannot afford to buy it for themselves. Many authorities have, in fact, long been making this provision, and the powers now conferred by the Public Health (Scotland) Amendment Act, 1925, retrospectively cover such arrangements as they may have made since March 1st, 1921, subject to the approval of the Board of Health. Cost has hitherto been a serious consideration in the progress of these schemes, and the board has now made arrangements with manufacturers whereby local authorities can get their insulin at reduced rates. The special price fixed is 2s. per 100 units, plus postage; this arrangement applies to the insulin sold by Boots Pure Drug Co., Ltd., British Drug Houses, Ltd., and Burroughs, Wellcome and Co. Local authorities who want to get their insulin at this rate are asked to send their orders to the Board, stating the quantity and make of insulin required. The orders will then be sent on to the manufacturers, who will forward the insulin direct, but will send their account to the Board. Every six months the Board will send on the total account to the local authority.

The late Dr. F. J. Tresilian.—Dr. Frederick James Tresilian, who died after a short illness at Enfield on Feb. 14th, at the age of 61, came of the Cornish family Tresilian of that ilk. He was brought up in Ireland and was educated at Midleton College and Queen's College, Cork, where he graduated as M.D. and M.Ch. in 1885. Two years later he became M.R.C.P. Edin. and for some time acted as assistant to a doctor in Wales. In 1890 he joined Dr. Briand in practice at Enfield, and from 1891 until quite recently worked without assistance there. In his early days at Enfield he also acted as clinical assistant at the ear, nose and throat, and eye departments at the Prince of Wales's Hospital, Tottenham, and also at the Central London Ear, Nose and Throat Hospital. In 1902 he became F.R.C.P. Edin. Dr. Tresilian was a keen and energetic member of the British Medical Association and of the North-East London Clinical Society. He was a medical referee of the Prudential Assurance Company and for many years served as honorary medical officer to the Enfield War Memorial Hospital. At his funeral a remarkable tribute was paid to his memory by a large gathering of those who had reason to admire him and regret his death. Dr. Tresilian leaves a widow, two daughters, and a son. His elder daughter belongs to the medical profession.

Mental After-Care Association.—The annual meeting will be held on Tuesday, March 16th, at 3 p.m., at the Fishmongers' Hall, London Bridge, E.C., when Sir Charles C. Wakefield, the President, will take the chair, and the following will speak: Sir William Collins, M.D., Dr. Nathan Raw, Mr. Lionel Faudel Phillips, Capt. A. O. Goodrich, Sir Maurice Craig, M.D., Dr. R. Percy Smith, and Dr. R. C. Turnbull. Members of the public are invited to be present, and information can be obtained from the secretary, Miss Vickers, Church House, Westminster, S.W. 1.

Leeds Workpeople's Hospital Fund.—This fund has contributed upwards of half a million pounds to medical charities in the city and district since it was started 40 years ago. The sum collected in 1925 was a new record in its history. The contributions reached over £42,000, most of which was raised by weekly collections of workers' pennies in the factories, workshops, and foundries of the city. The principal grants were £21,500 to the Leeds General Infirmary, £3225 to the Public Dispensary, £2687 to the Hospital for Women and Children, £1075 to the Maternity Hospital, £860 to the District Nursing Association, and £335 to the Jewish Hospital. The fund also maintains three convalescent homes, two for women and one for men, for the use of workers whose health has failed. The cost of their maintenance last year was £8240.

Royal Medical Benevolent Fund Guild.—The annual meeting was held on Feb. 27th at 47, Brook-street, Lady Bland-Sutton presiding over a very large assembly of subscribers and their friends. Lady Fripp, chairman of the council, reported a great increase in activity, necessitating the appointment of a general secretary-accountant to replace Miss Thomson, whose resignation after 15 years' zealous work was deeply regretted. Reports were given of the development of the various provincial branches of the Guild, some of which, notably Edinburgh, Bath, Cardiff, Glasgow, Reigate and Redhill, and Preston, had made good progress in obtaining new subscribers or in raising funds by means of entertainments or sales. A new branch had been formed at Great Yarmouth. Among the London districts Hampstead and St. Pancras were prominent, and five new districts had been formed—North London, Harrow, Pinner, Barnes, and Mortlake. In the unavoidable absence of Mrs. Scharlieb, M.D., the report of the hon. treasurer was read by Lady Bradford. She said that though donations this year had amounted to the record total of £3753, the amount (£1288) derived from regular annual subscriptions—which formed the only really reliable source of income—did not meet the often inadequate help given to older beneficiaries, quite apart from the money required for educational grants. The case committee had appealed for a 50 per cent. increase in the monthly maintenance grants to the older beneficiaries, and new subscribers were urgently needed to this end. Mrs. A. Ormond, chairman of the case committee, in a moving report of the cases relieved, gave examples of the benefits conferred on the younger persons—from a grant to enable a girl left fatherless to complete her medical studies, to the provision of one square meal per day to a lad apprenticed to a firm of engineers. During 1925 21 girls and 16 boys had been educated entirely or partially at the cost of the Guild. Observation of children living in homes where money is pitifully short has convinced the committee that where possible boarding schools are to be preferred. The depressing atmosphere of such homes, a too limited and monotonous diet, and the absence of any money even for trivial amusements such as bus rides, are bad for children, and the care-free atmosphere of school life is much more desirable. Mr. Pett Ridge and Miss Madge Titheradge spoke eloquently on behalf of the Guild, and cordial votes of thanks were given to Sir John and Lady Bland-Sutton and to the officers of the Guild. At the invitation of the Medical Insurance Agency, which has this year again presented a donation of £525, a representative of the Guild, in the person of Mrs. A. Ormond, has been appointed to serve on the subcommittee of the agency dealing with the education of girl beneficiaries. Legacies received during the year include £100 from the late Miss E. J. Humby, £200 from the George Macbain Trust, and £300 from the late Miss Constance Turner. The Stock Exchange Male Voice Choir again in 1925 and in 1926 devoted the proceeds of their annual concert to the Guild, and in 1925 the sum accruing from the third of the successful golf competitions organised by Lady Rigby, under the auspices of the Ladies' Medical Golfing Society, completed the £250 for an annuity scholarship which these competitions were started to provide. Special efforts such as these are of value not only for the money they bring in but for the interest they excite in those previously unfamiliar with the work of the Guild. Those who are prepared to help in propaganda work in any form, or to send parcels of old clothes, are asked to communicate with the Secretary of the Guild, 58, Great Marlborough-street, London, W.

OXFORD OPHTHALMOLOGICAL CONGRESS.—The Congress will assemble at Keble College on the evening of Wednesday, July 14th, and the meeting will be held on July 15th, 16th, and 17th. On July 15th there will be a discussion on Sympathetic Ophthalmia, to be opened by Mr. Malcolm L. Hepburn, Mr. S. H. Browning, and Dr. T. Harrison Butler. The Doyne memorial lecture will be delivered on July 16th, by Dr. Thomson Henderson, on the Anatomy and Physiology of Accommodation in Mammalia. One afternoon will be devoted to demonstrations in the scientific and commercial museums. Further information may be had from the hon. secretary at Salisbury House, Wolverhampton.

DR. J. B. HURRY'S GIFTS TO READING.—Dr. J. B. Hurry, the author of "Vicious Circles in Disease," which has been translated into French, Spanish, and Italian, and has gone through three editions in this country, is leaving Reading for Bournemouth after 40 years of active interest in the town both as a medical man and, quoting the farewell words of the mayor, "one of Reading's best citizens." Dr. Hurry has given the town as a parting gift the last of a series of ten pictures illustrating the history of Reading Abbey, which he has had painted with the object of stimulating civic pride and local patriotism. The last picture has been painted by Mr. Stephen Reid and shows the Parliament of Henry VI. at Reading Abbey, A.D. 1453. The ten pictures are housed in the Reading Art Gallery and make a collection which is perhaps the only one of its kind in this country. The presentation ceremony took place in the Council Chamber of the Reading Municipal Buildings on March 6th. The nine pictures already presented to the town are as follows: The Burial of Henry I., Founder of the Abbey, 1136 (Artist, Harry Morley). The Trial by Combate between Henry of Wessex and Robert of Montfort, 1163 (Harry Morley). The Hallowing of the Abbey Church by Archbishop Thomas Becket, 1164 (Stephen Reid). The Visit of Heraclius, Patriarch of Jerusalem, to Henry II., 1185 (Stephen Reid). "Summer is I-cumen in," Circa, A.D. 1240 (E. Board). The Marriage of John of Gaunt to Blanche of Lancaster 1359 (E. Boardman Wright). The Election by the Abbot, John Thorne I., of Thomas Clerke to be Mayor of Reading, 1460 (Stephen Reid). The Enthronement of Elizabeth Woodville as Queen of Edward IV., 1464 (E. Board). The Execution of Hugh Faringdon, the last Abbot of Reading, 1539 (Harry Morley).

SUSSEX THROAT AND EAR HOSPITAL.—A good financial position was reported by the governors at the recent annual meeting at Brighton, and it is hoped that the new out-patients' department will be begun this year. During 1925 233 more in-patients were treated at the hospital, the total being 902, and the number of out-patients increased by 217 to 1858. Contributions paid voluntarily by patients amount to nearly £1000, of which over £935 came from in-patients. The hospital has now the support of the Brighton, East Sussex, West Sussex, and Lewes education committees, and also continues to have the support of the Sussex Provident Scheme.

## NFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED FEB. 27TH, 1926.

*Notifications.*—The following cases of infectious disease ere notified during the week:—Small-pox, 202 (last week 12); scarlet fever, 1792; diphtheria, 1214; enteric fever, 3; pneumonia, 1300; puerperal fever, 72; cerebro-spinal ver, 10; acute poliomyelitis, 5; encephalitis lethargica, 4; continued fever, 2; dysentery, 11; ophthalmia onatorum, 100. There were no cases of cholera, plague, r typhus notified during the week.

Of the 203 cases of small-pox (50 more numerous than in e previous week) 48 were reported from the county of erby, 38 of these from Derby C.B.; 157 (last week 124) om the county of Durham, 11 being from Gateshead C.B., 5 from South Shields C.B., the remainder from widely cattered urban and rural districts, and including 31 (last eek 35) from Blaydon, 14 from Chester-le-Street, and 11 om Houghton-le-Spring; 4 from the county of Lancaster, 3 at Oldham C.B., a new focus; 43 from the county of orthumberland, 28 of these from Ashington; 3 from the ounty of Nottingham; 6 from the East Riding of Yorkshire Kingston-upon-Hull 1); 32 from the West Riding, 23 of hese being from Rawmarsh and 5 from Rotherham R.D.

*Deaths.*—In the aggregate of great towns, including London, here were 3 (2) deaths from enteric fever, none from small-ox, 105 (47) from measles, 7 (3) from scarlet fever, 57 (4) om whooping-cough, 56 (13) from diphtheria, 40 (11) from iarrhoea and enteritis under 2 years of age, and 69 (20) om influenza. The figures in parentheses are those from London itself. For the fourth time during the last six eeks the deaths from measles exceeded 100. The mortality om influenza remains practically stationary.

# Medical Diary.

## SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

*TUESDAY, March 16th.*—*5.30 P.M., GENERAL MEETING OF* FELLOWS. 8.30 P.M., PATHOLOGY. Annual General Meeting. Election of Officers and Council for 1926–1927. *Papers:* Dr. Paul Fildes: Observations on Tetanus. Sir Lenthal Cheatle: Paget's Disease of the Nipple and Changes in the Underlying Breast. Dr. James Young: Further Study of the Micro-Parasite Isolated from Carcinoma by Young, Glover and Colleagues, Stearn, Sturdivant and Stearn, and others.

WEDNESDAY.—5 P.M., HISTORY OF MEDICINE. *Papers:* Sir StClair Thomson: Antimonial Cups. Mrs. Lindsay: Dentistry in the Eighteenth Century.

THURSDAY.—5 P.M., DERMATOLOGY. (Cases at 4 P.M.) *Cases:* Dr. S. E. Dore: (1) Xanthoma Tuberosum Multiplex. (2) Gaucher's Disease with Cutaneous Lesions (with Dr. de Wesselow). Other cases will be *shown.*

FRIDAY.—8.30 P.M., ELECTRO-THERAPEUTICS. *Paper:* Dr. R. O. Moody (California): The Normal Position of the Abdominal Viscera and Enteroptosis.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, March 15th.—9 P.M., Dr. E. Farquhar Buzzard: Principles of Treatment in Relation to Diseases of the Nervous System (Third Lettsomian Lecture.)

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

THURSDAY, March 18th.—8.15 P.M. A Laboratory Meeting at the Royal Army Medical College, Grosvenor-road, Millbank, S.W. *The following, amongst others, will* give demonstrations: Prof. Warrington Yorke (on behalf of Prof. Blacklock), Dr. P. A. Buxton, Colonel Clayton Lane, Colonel W. P. MacArthur, Dr. A. C. Stevenson, Drs. J. G. Thomson and A. Robertson, Drs. C. M. Wenyon and H. H. Scott.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.

TUESDAY, March 16th.—5 P.M., Dr. Bernard Hart: Development of Psychopathology, and its Place in Medicine (second Goulstonian Lecture).

THURSDAY.—5 P.M. (last Goulstonian Lecture).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn fields, W.C.

MONDAY, March 15th.—5 P.M., Mr. Shattock: Some Bone Tumours.

FRIDAY.—5 P.M., Sir Arthur Keith: Hydrocephaly and Encephalocele.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole-street, W.

MONDAY, March 15th, to SATURDAY, March 20th.—Fellowship of Medicine lecture, at the Medical Society, 11, Chandos-street, W. Thursday, at 5.30 P.M., Mr. H. W. Carson: Hernia. Free to all members of the medical profession.—CHELSEA HOSPITAL FOR WOMEN, Arthur-street, S.W. Post-graduate Course in *Gynæcology.* Daily operations, lectures, and demonstrations.—HAMPSTEAD GENERAL HOSPITAL, Haverstock-hill, N.W. Two weeks' course, 4.30 to 6 P.M., for Practitioners. Demonstrations, &c., in various departments of the Hospital throughout the course.—*HOSPITAL FOR* DISEASES OF THE CHEST, Brompton. All-day course *for two weeks.* Operations, lectures, and demonstrations from 10.30 A.M.—LONDON SCHOOL OF HYGIENE AND TROPICAL MEDICINE, Endsleigh-gardens, N.W. Tuesday and Thursday, 2 P.M., Dr. Low and Dr. Manson Bahr. Special lecture-demonstration, illustrated by cases in *hospital. Further information from the* Secretary of the Fellowship of Medicine.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: FEBRUARY–MARCH, 1926.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, March 15th.—2 P.M., Out-patient Clinic: Dr. Hinds Howell. 3.30 P.M., Mental Deficiency: Dr. Birley.

TUESDAY, March 16th.—2 P.M., Out-patient Clinic: Dr. Walshe. 3.30 P.M., Cerebral Vascular Disease, I.: Dr. Adie.

THURSDAY, March 18th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Epilepsy: Dr. Martin.

FRIDAY, March 19th.—2 P.M., Out-patient Clinic: Dr. Adie. 3.30 P.M., The Cerebro-spinal Fluid in Meningitis: Dr. Greenfield.

The fee for the Course, including Pathology lectures, is £5 5s. For those who hold Perpetual Tickets the fee is £3 3s.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.

Fees should be paid to the Secretary of the Hospital at the *Office on entering for the Course.*

J. G. GREENFIELD, Dean of Medical School.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Monday, March 15th.—10 A.M., Surgical Out-patients: Mr. W. E. Tanner. 10.30 A.M., Gynæcological Operations: Mr. A. E. Giles: Throat, Nose and Ear Operations: Mr. W. Ibbotson. 2 P.M., Medical, Surgical, and Gynæcological Clinics, Operations. 6.30 P.M., Venereal Department.

Tuesday.—2 P.M., Medical, Surgical, Throat, Nose and Ear Clinics, Operations. 4.30 P.M., Dr. J. B. Alexander: Rheumatoid Arthritis.

Wednesday.—10.30 A.M., Surgical Operations: Mr. E. Gillespie. 2 P.M., Medical, Eye, and Skin Clinics, Operations. 5.30 P.M., Venereal Department.

Thursday.—10.30 A.M., Dental Out-patients: Mr. E. S. Pierrepont. 2 P.M., Medical Surgical, and Throat, Nose and Ear Clinics, Operations. 5 P.M., Operations.

Friday.—10.30 A.M., Eye Operations: Mr. N. Fleming. 2 P.M., Surgical, Medical, and Children Clinics, Operations. 3 P.M., Gynæcological Clinic. 6.30 P.M., Venereal Department.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

Friday, March 19th.—4 P.M., Dr. Nicol Rankin: Purulent Rhinitis.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Thursday, March 18th.—4 P.M., Mr. Barrington-Ward: Empyema.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

Tuesday, March 16th.—5 P.M., Dr. Haldin-Davis: Leukæmia Cutis. Mycosis Fungoides.

Thursday.—5 P.M., Dr. Ingram: Pathological Demonstration. (Chesterfield Lectures.)

UNIVERSITY OF SHEFFIELD POST-GRADUATE CLINICS.

Friday, March 19th.—3.30 P.M. (at the Royal Hospital). Dr. Abercrombie: Types of Paralysis in Childhood and their Treatment.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

Tuesday, March 16th.—4.15 P.M., Dr. W. Fletcher Shaw: Hæmorrhage about the Menopause.

Friday.—4.15 P.M., Mr. P. R. Wrigley: Demonstrations of Surgical Cases.

# Appointments.

Douglas, Charlotte A., M.D. Glasg., has been appointed Medical Officer to the Scottish Board of Health.

Gilmore, Edward R. W., M.B., Ch.B., D.P.H. Vict., D.P.H. Lond., D.T.M. Liverp., Assistant Medical Officer of Health for the County Borough of Southampton.

Hunter, A. E., M.D. Edin., one of the Medical Referees under the Workmen's Compensation Act for the Falkirk District.

Mitchell, Godfrey W., M.D., B.Ch., D.P.H. Camb., D.M.R. & E., Assistant Medical Officer in charge of the X ray department, St. Mary's Hospital.

Metropolitan Asylums Board: Borthwick, G. A., M.D., Ch.B. Edin., D.P.H., D.T.M. & H., and Rolleston, J. D., M.D., Ch.B. Oxf., Medical Superintendents in Infectious Hospital Service.

Manchester Royal Infirmary: Bramwell, J. C., M.D. Manch., M.R.C.P. Lond., an Honorary Assistant Physician; Tylecote, F. E., M.D. Manch., Physician.

Salford Royal Hospital: Addis, William Robert, M.B., Ch.B. Edin., Honorary Gynæcologist; Collins, Beatrice L., M.R.C.S., L.R.C.P., Radiologist.

# Vacancies.

*For further information refer to the advertisement columns.*

*Birmingham General Hospital.*—Asst. Surg. to Throat and Ear Dept. £50.

*Bradford, Grassington Sanatorium.*—Med. Supt. £700.

*Brighton, Royal Sussex County Hospital.*—H.S. £150. Also Hon. Dermatological Clin. Asst.

*Bristol Mental Hospital.*—Sen. Asst. M.O. £550.

*Cardiff City Mental Hospital, Whitchurch, near Cardiff.*—Res. Clin. Asst. for six months. 50 guineas.

*Cardiff, King Edward VII. Welsh National Memorial Association.*—Two Area Tuberculosis P.'s. Each £696.

*Central London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.*—Sen. and Jun. H.S. At rate of £100 and £50 respectively.

*Chelsea Hospital for Women, Arthur-street, Fulham-road, S.W.*—Anæsthetist. £21.

*City of London Maternity Hospital, City-road, E.C.*—Asst. Res. M.O. At rate of £80.

*Denbigh, North Wales Sanatorium, Llangwyfan, near Denbigh.*—Third Asst. Res. M.O. £200.

*Dewsbury County Borough.*—Asst. Sch. M.O. and Asst. M.O.H. £600.

*Dreadnought Hospital, Greenwich, S.E.*—H.S. and H.P. Each at rate of £110.

*Elizabeth Garrett Anderson Hospital, 144, Euston-road, N.W.*—Asst. Med. O. Ven. Dis. Dept. £1 1s. per attendance. two Anæsthetists. At rate of £10 10s.

*Evelina Hospital for Children, Southwark, S.E.*—H.S. At rate of £120.

*Folkestone, Royal Victoria Hospital.*—Res. M.O. At rate of £150.

*Fulham School Medical Treatment Centre.*—Ophth. S. £50 per quarter.

*Halifax Royal Infirmary.*—Third H.S. At rate of £150.

*Hampstead Borough.*—Four Consulting Obstetricians.

*Hartlepool Borough.*—M.O.H., &c. £800.

*Herts County Mental Hospital, Hill End, St. Albans.*—Sen. Asst. M.O. £600.

*Hospital for Sick Children, Great Ormond-street, W.C.*—H.S., H.P., and Asst. Cas. O. £50 in each case.

*Hull City and County of Kingston-upon-Hull Maternity and Child Welfare Dept.*—Asst. M.O. £600

*Liverpool Eye and Ear Infirmary, Myrtle-street.*—Hon. Asst. S. to Aural Dept.

*Liverpool Port Sanitary Authority.*—Asst. Port M.O. £700

*London Lock Hospital, 233, Harrow-road, W.*—Second H.S. £150.

*London School of Hygiene and Tropical Medicine, 23, Endsleigh-gardens, W.C.*—Asst. in Dept. of Entomology. £500.

*Macclesfield, Cheshire Mental Hospital, Parkside.*—Locum Tenens Asst. M.O. At rate of £350.

*Manchester Committee on Cancer.*—Pathologist. £1000.

*Manchester Radium Institute.*—Anæsthetist. £100.

*Manchester, St. Mary's Hospitals.*—Three H.S.'s. Each at rate of £50.

*Metropolitan Asylums Board.*—Asst. Pathologist. £700.

*Mount Vernon Hospital, Northwood, Middlesex.*—Hon. Asst. Actino-Therapeutist.

*National Hospital for the Paralysed and Epileptic, Queen-square, W.C.*—Orthopædic S.

*Northampton General Hospital.*—Hon. Asst. S.

*Norwich, Norfolk and Norwich Hospital.*—H.S. £120.

*Queen Mary's Hospital for the East End, E.*—Hon. Asst. Obstet. S.

*Queen's Hospital for Children, Hackney-road, Bethnal Green, E.*—Res. M.O. £200.

*Radcliffe Urban District.*—M.O.H. and Sch. M.O. £800.

*Reading, Royal Berkshire Hospital.*—H.P. £150.

*Redhill, Surrey, Royal Earlswood Institution.*—Jun. Asst. M.O. £250.

*Rochdale Infirmary and Dispensary.*—Jun. H.S. £200.

*Royal Northern Hospital, Holloway, N.*—M.O. to Out-patients. At rate of £125.

*St. Andrew's Hospital, Devons-road, Bow, E.*—Med. Supt. £1000.

*St. Paul's Hospital for Skin and Genito-Urinary Diseases, Endell-street, Holborn, W.C.*—H.S. £200.

*St. Thomas's Hospital.*—P.

*Southampton County Borough.*—Tuberculosis O. £750.

*South London Hospital for Women, South Side, Clapham Common, S.W.*—H.P. and three H.S.'s. All at rate of £50.

*West London Hospital, Hammersmith-road, W.*—Hon. Med. Radiologist.

*Willesden Urban District Council.*—Consulting Ophth. S. 4 guineas per session.

# Births, Marriages, and Deaths.

## BIRTHS.

Darbyshire.—On Feb. 24th, to Dr. Florence Darbyshire, wife of Dr. F. J. Darbyshire, Westbourne Park-road, W.—a son.

Harries.—On the 7th inst., at a nursing home, the wife of Eric H. R. Harries, M.D. Lond., City Hospital, Little Bromwich, Birmingham—a daughter.

Holmes.—On March 2nd, at Tower House, Burgess Hill, Sussex, the wife of Lieut.-Colonel J. M. Holmes, I.M.S. (retd.), of a daughter.

Howarth.—On March 6th, at Devonshire-place, W., the wife of Walter Howarth, F.R.C.S., of a son.

Jacques.—On Feb. 27th, at a nursing home, Clifton, Bristol, to Evelyn Jacques, wife of Frederic Jacques (both of the Malayan Medical Service)—twin daughters.

McFadyean.—On March 6th, at Herne-hill, S.E., the wife of Kenneth McFadyean, M.R.C.S., L.R.C.P., of a son.

## MARRIAGES.

Kilner—Brennan.—On Feb. 23rd, at St. James's Church, Spanish-place, T. Pomfret Kilner, F.R.C.S., to Florence, widow of Lieut. J. Brennan, Lancs Hussars.

Wigram—Woolfe.—On Feb. 22nd, at the St. John's Wood Synagogue, N. G. Wigram, F.R.C.S., to Dorothy, second daughter of Mr. and Mrs. John Woolfe, of Finchley-road, London.

## DEATHS.

Leigh Cox.—On Feb. 28th, at a Boscombe nursing home, Wilfred Leigh Cox, M.R.C.S., L.R.C.P., of Beresford-road, West Southbourne.

Sullivan.—On Feb. 26th, at Bournemouth, Dr. W. C. Sullivan, Medical Superintendent, Broadmoor Criminal Lunatic Asylum, aged 57 years.

Surrage.—On March 7th, at King's College Hospital, Harold James Rocke Surrage, M.R.C.S., L.R.C.P., of George-street, Portman-square, in his 32nd year.

Yelf.—On Feb. 28th, at Hemel Hempstead, John Burnet Yelf, M.R.C.S., L.R.C.P. (late of Shipston-on-Stour).

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

# Notes, Comments, and Abstracts.

## CHILD WELFARE: REVIEW OF A YEAR'S WORK

The annual meeting of the National Baby Week Council was held at Carnegie House, Piccadilly, on March 4th, under the presidency of Dr. Mary Scharlieb She referred to the still high mortality of infants in the first four weeks of life, to combat which well-qualified doctors, nurses, and midwives were necessary. The Astor challenge shield for the most effective baby week campaign was won by Northampton, and Astor banners by Littlehampton and Arundel and by Wigan, while certificates of merit went to Blackburn, Middleton, East and West Molesey, Rathmines (Dublin), Walsall, and Walthamstow. These were presented by Dr. Scharlieb during the afternoon.

Dr. Eric Pritchard moved the adoption of the annual report. The year's work showed three new features—Baby Sunday, with a mass meeting in the Queen's Hall, the Empire's mother and baby competition; and the first summer school of maternity and child welfare. The motion was seconded by Dr. David Kirkhope and carried, as was the report of the joint honorary treasurers and the balance-sheet introduced by Major C P. Lovelock.

An address on the Economics of Child Welfare Work was then given by Dr. J R. Kaye, M O.H. of the West Riding. There were, he said, two aspects of health services—the positive, dealing with the promotion of health, and the negative, concerned with mortality and morbidity Prevention or restriction of disease was one of the best ways of promoting health, and of all factors leading to it maternity and child welfare work was perhaps the most fruitful, though the most modern. While we spent every year £1,750,000 on asylums, £750,000 on mental deficiency, and £3,000,000 on tuberculosis, we only spent £1,500,000 on maternity and child welfare, which was preventive work. Welfare centres were not repair shops or surgeries; we wanted them to be attended by well babies and good mothers. The work of health visitors in the homes was of great service in maintaining health. There were 105 centres in the West Riding, and Dr. Kaye reckoned that a centre could be established for £100 and carried on at a cost of £100 year

The Hon. Mrs. Bernard James then spoke on the Rural Child. People thought of country children as being specially fortunate in the matter of healthy environment, but there was another side to the question. Shortage of houses often meant that two families had to share a cottage, and this created a terrible problem in cases of illness, especially if it was infectious illness. The water-supply was frequently dependent on a well, a pump, or a rain-water tank, and the water might be dirty or contaminated. Many houses had no proper sanitation, and the arrangements were, in some cases, neither clean nor healthy. There were difficulties arising from poverty; the agricultural worker's wage was slight fit when everybody was well, and it was hard that, if one child needed a little extra, all the others had to go short There was often no hospital near at hand, and many places had no district nurse, while a doctor was an expensive luxury only resorted to in cases of serious illness The result was that mothers had no systematic help in regard to their children's health. A good district nurse and midwife was invaluable; most of the 70 district nurses in Buckinghamshire acted also as school nurses and health visitors, and became the trusted friends of the families. There were advantages in having medical officers of the centres from a distance, and it was desirable to have doctors, preferably women, who had specialised in children's work. The right thing was to establish centres in the central villages and send an omnibus to fetch mothers and children from the surrounding districts. This was done in Mrs. James's own district, and the Ministry of Health, after sending down an inspector, had allowed their claim for grant in respect of conveyances.

## THE PREVALENCE OF CANCER.

A lay correspondent complains that he is confused by reason of statements in the press in regard to medical matters, and asks how he can learn the truth. "On one day," he says, "I am told that cancer is on the increase, and on another that it is no more prevalent now than it was 100 years ago," and he encloses the extracts from the newspapers. We sympathise with our correspondent, who suffers in common with many others, but can only refer him to the official figures of the Registrar-General. Newspaper readers desire sensational statements, and do not fully realise the evil which is done by them. In the matter of cancer, misleading pronouncements may be particularly serious, especially when some method of therapeutics is vaunted. For a sense of false security may be engendered which obstructs that early treatment which is at present the only safeguard. The newspaper extracts which contradicted each other managed to be both wrong.

## A HOSPITAL IN CHINA.

Before his departure from China recently, Dr. R. R. Walker was present at the opening of a new maternity building attached to the Church Missionary Society's hospital at Hinghua (Fukien), with which he has been connected for 18 years. This building was a gift from the people of the city, who had subscribed 50,000 dollars in token of appreciation of the services of Dr and Mrs Walker. The Hinghua hospital was founded 30 years ago by the C.M.S., and was for 17 years under the charge of Dr. van Someren Taylor It has 380 beds, besides 60 beds in the new maternity building, and for a long time Dr. Walker has been the only British doctor there. He has been assisted, however, by five Chinese doctors, three English sisters, 20 Chinese women nurses, and four Chinese men nurses. During the past few years wounded soldiers and bandits have formed a large proportion of his patients, and on several occasions he has been asked by the Governor of the city to act as mediator between opposing forces in the perpetual civil war.

## *OPEN AIR SHELTERS.*

The open-air shelters manufactured by the Papworth Industries, Cambridge, all of which are of good material, are now being sold at prices ranging between £12 and £20. Particularly worthy of notice is the "Country" shelter, which can be made with the roof and front jointed so as to allow the whole structure to be passed through a six foot doorway, an advantage where there is no side entrance to the garden of a house. The revolving shelter, which turns at a touch, is also a portable building which has decided merits.

Our readers will like to know where useful adjuncts to what is often protracted treatment can be obtained in a form that is available promptly without much expenditure.

## THE LORDSHIP OF THE WORLD.

We have received this small book dealing with the large subject of the inter relations of the British Empire, the United States, and Germany (C. J O'Donnell. London: Cecil Palmer Pp 187 5s.) and find it to be an uncompromising piece of political writing which contains no particular appeal to the medical profession Many popular views are contravened and much vigorous phraseology is employed in general deductions, which will not always be held justified by the facts, even if it is admitted that the facts are so, or are set out in due proportion. None the less, it is a book which will appeal to a certain mode of thought among medical men, if only because of the many illustrations that are provided in it of the sinister influence of common conceptions, when not founded upon reason. Medical men, whose business it is to be familiar with the mental make-up of their fellows, know perfectly well that the various proceedings and policies denounced whole-heartedly by Mr. O'Donnell did not have their origin in cruelty or malice, but publicists insist so strongly upon the essential malignancy of those to whom they are opposed that readers who do not think acquire passively many contorted views of the world No doubt there is much in what Mr. O'Donnell has written that we all ought to think about, but it would be unwise to adopt his outlook without probing his facts, or to endorse his conclusions without inquiry into their logical basis.

## AN AID TO THE STUDY OF MIDWIFERY.

Miss Olive Haydon, a member of the Central Midwives Board, has written a short guide[1] to those specimens in the museum of the Royal College of Surgeons of England which are likely to interest and instruct students of midwifery. It is intended primarily for midwives, but if it encourages medical students to make more use of the admirable material on view in the museum it will be doing a service to them also. It is undoubtedly convenient to carry such a guide on a visit—or preferably on several visits—to the museum, and there is no doubt that anyone who examines the exhibits to which it refers will afterwards find it much easier to take in the mass of facts which the student is asked to learn within a few months. We doubt whether all medical students understand that the museum is open to them. Those who never go to the College except under the stress of examination are certainly unwise, for some of the collections are admirably adapted to the student's needs and are beautifully arranged.

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[1] The Midwives' Guide to the Museum of the Royal College of Surgeons. The Office of Nursing Notes, 13, Buckingham-street, W C. 2. Pp. 63. 1s.

## A CONVALESCENT HOME FOR THE MIDDLE-CLASSES.

A CONVALESCENT home has been opened at the New Hall, Dovercourt, to cater for those who cannot afford the large fees asked in nursing homes, and do not care to go to those supported by charity. *It is open to all employees of any* place of business, banks, works, or to the "new poor." The home, situated in its own grounds, overlooks the sea, and is designed to be not an institution but a pleasant home, where everything is done for the comfort of the patient. The rooms are large and airy, and books, papers, and games are supplied. The staff is adequate, and the home is visited by Dr. Ford Porter, medical officer of health of the district. The price charged is 30*s.* per week inclusive. Applications for admission should be made to the London office to Captain Claremont, R.N., 52, Abingdon-villas, Kensington, W. 8.

We bring the home before our readers with the belief that many of them will know patients who might be greatly benefited by the opportunities offered. It need hardly be said that the extraordinary moderation of the fee is due to the fact that the whole service and administration are supplied gratuitously by Captain Claremont and his wife and assistants.

## ERYTHEMA NODOSUM AND TUBERCULOSIS

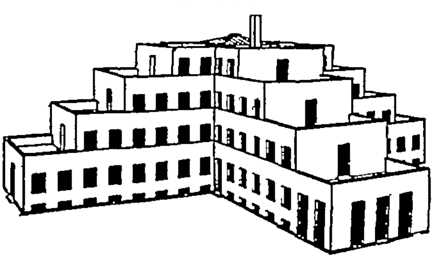
IN the *Semana Medica* (Buenos Aires) of Jan. 7th Prof. G. Alforo summarises his 30 years' experience of erythema nodosum. His conclusions are as follows: (1) Erythema nodosum may be the expression of various infections but not of any one in particular. (2) Nevertheless, the almost constant coincidence of positive tuberculin reaction and the presence of Koch's bacilli in some nodules, shown by staining or inoculation, prove that it is usually a manifestation of tuberculosis. (3) Not infrequently the general symptoms (loss of appetite, weakness, and fever) which precede and go with the eruption suggest a larval or attenuated tuberculosis. (4) In some cases observed by Prof. Alforo erythema nodosum has shown itself as the final episode in a febrile attack lasting some weeks, and has cut short a budding tuberculosis in children with a positive tuberculin reaction and enlargement of the tracheo-bronchial glands. In such cases, he states, it seems to be an exanthem of fixation of the tuberculous virus and to determine favourably a miliary infection probably attenuated.

## TERRACED BUILDINGS.

THE drawings reproduced represent an ingenious type of building devised by Mr. Gjerlov-Knudsen, an architect of Copenhagen. The artistic merits of the design may not alone be sufficient to commend it, but there are certain very obvious advantages in this kind of city dwelling which make it worth consideration.

The figures show a block of flats in perspective and in cross-section. The building is in the form of a cross, and it is built in terraces. Each arm of the cross is arranged to form a complete dwelling or flat, and it will be clear from the pictures that the size of the wings or flats diminishes towards the apex of the pyramid, until at the top they become very small indeed. In the centre of the cross there is a communal staircase or lift, and presumably the occupants of the apartments arrange themselves in layers according to financial status. In the building specified there are five rooms, together with a small room and a bathroom, in the first-floor flats; three rooms with a small room and a bathroom in the second-floor flats; and two rooms and a shower bath in the third-floor flats. Each kitchen is connected with the basement through a special shaft with a transport lift. Refuse may be transported through this in special baskets. There are isolated rooms in the basement for dustbins, and also the necessary rooms for washing and drying, besides store-rooms, bicycle-rooms, and a lumber-room for each apartment. "The plans especially intended for England are furnished with fireplaces meant for gas, and, in some cases, coal fires."

FIG. 1.

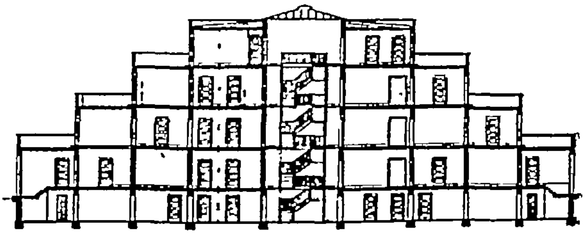


A block of flats in perspective.

It is easy to see the advantages of the plan. Every room in every flat can have large windows looking out on an open space; every occupant can have plenty of fresh air and light. Each flat, moreover, possesses a small terrace of its own which can be used by children for their play or can be turned into a miniature garden. Where several of these buildings are built close to one another, none of them will take the light from the windows or terraces of any other, and the streets will not be darkened as they are by perpendicular houses. In a detailed communication Mr. Gjerlov-Knudsen has shown how he would adapt his building to the needs of a sanatorium, convalescent home, or seaside hotel, and it seems particularly fitted for such purposes.

The amenities are obvious; but it is equally clear that construction would be expensive. First of all, the site would have to be bigger than that of the ordinary block building, because so much space is "wasted" by the cruciform plan. Owing to the limited accommodation in the upper storeys there would be a smaller number of tenants to pay rent than might be expected in a building covering so much ground. The vast area of the outside walls would be very far from economical, and there is the added objection that the *inside* walls in the lower storeys would have to be strongly constructed so as to bear the weight of the distal outside walls of the flats above them. At the present time it is largely lack of money that prevents the construction of more and better houses, and architects already do what they can to bring light and air into their buildings. But where money can be spared, or where a wealthy client can be induced to sacrifice external decoration to the health of those who have to live in his building, there is certainly scope for the application of the Danish plan in its essentials. Light and air are worth great sacrifices. In the meantime it will be reserved for some nation looking at other than pecuniary results to build the first complete town of terrace buildings, for which Mr. Gjerlov-Knudsen has already devised an alarmingly symmetrical plan. Further particulars can be had from him at Dosseringen, 36, Copenhagen.

FIG. 2.



The same in cross-section.

## A BOOK ABOUT SUGAR.

AN interesting little book[1] by Mr. Geoffrey Fairrie, designed to present general information about sugar in such a form that it can be easily understood by the man-in-the-street, has reached us. The volume is not, however, solely for popular consumption, since it contains a considerable amount of up-to-date technical detail which should be of considerable value to the serious student. Although the author is a director of the largest privately-owned sugar refinery in the world, the point of view presented is not exclusively that of the refiner; he deals impartially with every aspect of the subject, without so much as hinting as to whether the establishment of the beet sugar industry in this country is likely to affect the refining industry adversely or not. The book opens with a brief chapter on "How the plant makes sugar"; then follow two chapters on the outlines of the production of raw cane and beet sugars respectively. In the fourth chapter the production of unrefined direct consumption sugars are described, and the two following chapters are devoted to modern refining processes; the second of these chapters contains a valuable section on charcoal and decolourising carbons, in which will be found a considerable amount of first-hand information which is not otherwise so easily accessible. The seventh chapter is historical, being devoted to old-time methods and their development; chapter eight contains a brief and popular account of the physiological aspects of carbohydrate metabolism, and in the ninth chapter are described a number of other sweetening agents, such as maple sugar, glucose, lævulose, syrups, and molasses.

Although the number of works dealing with the manufacture of sugar is considerable, we know of no book which gives such a comprehensive account of the whole subject of sugar, and we can recommend it as a readable book containing reliable information.

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[1] Sugar. By Geoffrey Fairrie. Liverpool: Fairrie and Co., Ltd. 1925. Pp. 233.

# Goulstonian Lectures

ON THE

# DEVELOPMENT OF PSYCHO-PATHOLOGY

## AND ITS PLACE IN MEDICINE.

*elivered at the Royal College of Physicians of London on March 11th, 16th, and 18th, 1926,*

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## LECTURE I.

DURING the past few decades psychology has merged with disconcerting vigour from the paths of cademic quietude, and has laid claim to a substantial hare in the practical affairs of mankind. It has serted its right to a place in the proud structure f the sciences, and its right to contribute to the nderstanding and control of the actual problems of uman life. Among those problems is the causation nd treatment of disease, and it is to the endeavours nd achievements of psychology in this sphere that the present lectures are devoted. Our task will be to race out the development of the psychological pproach in medicine, to consider the scientific and medical value of the successive stages in that development, and finally to estimate the place in medicine to which the psychopathology of to-day is entitled.

The justification of such a survey hardly requires demonstration. Interest in morbid psychology has ncreased in a remarkable manner during this century, and at the present time there is a veritable spate of literature dealing with the subject. It is true that much of this has but little value from the standpoint of science, but some of it is solid work, and the claim is made that psychopathology has succeeded in elucidating, at any rate in large measure, the problem of the nature and causation of the psychoneuroses. Such a claim, relating as it does to a group of disorders which form a not inconsiderable portion of medical practice, clearly merits careful examination and appraisement.

Our task, then, is to describe the history of psychopathology as a branch of medicine, to evaluate its achievements, and to consider how far it has succeeded in establishing a secure position within the fold of science. As a preliminary measure it will be helpful to define the precise meaning of some of the terms in this statement of our aim, so that the extent and limitations of the path we desire to traverse may be clearly marked out.

### DEFINITION OF PSYCHOPATHOLOGY.

"Psychopathology" connotes, not a mere description of mental symptoms, but *an endeavour to explain* disorder or certain disorders in terms of psychological processes. The distinction expressed here is of the greatest importance for a clear understanding of the subject. The description of mental symptoms constitutes clinical psychiatry, and is as distinct from psychopathology as clinical medicine is from pathology. In the former case we are concerned with the recording of clinical phenomena, in the latter with the elucidation of the processes responsible for those phenomena. To enumerate the delusions which a patient expresses is not psychopathology but clinical psychiatry, and we do not pass beyond this until we endeavour to explain the incidence of the delusions in terms of causal processes. Moreover, this explanation is only psychopathological if it is couched in the language of psychology and built up of psychological conceptions. Drever has remarked that "the indirect explanation of experience in terms of nervous structure and nervous process is no psychological explanation at all, but a physiological one,"[1] and it is equally true that the explanation of morbid mental symptoms in terms of brain may be excellent pathology, but it is not psychopathology. How far it is possible and useful to explain disorder by means of psychological conceptions, or, in other words, how far psychopathology deserves a place in scientific medicine, is, of course, a legitimate question, and one which forms a chief subject of inquiry in these lectures; but we cannot even begin to answer it unless it is clearly understood that psychopathology does not mean a physiological explanation of mental disorder, but a psychological explanation of disorder, whether that disorder is mental or physical in its manifestations. For example, an explanation of the intellectual enfeeblement of senile dementia in terms of the lesions found in the brain is a physiological interpretation, although the phenomena explained are mental in character, while an explanation of hysterical paralysis in terms of suggestion is psychopathological although the phenomena explained are physical in character.

In the light of these considerations it will be understood that in the present lectures we are only indirectly concerned with clinical psychiatry, and that its history and development do not enter into our inquiry. It is noteworthy, indeed, that psychopathology has mainly grown, not from the study of insanity, but from the investigation of hysteria, in which the phenomena are in great part physical in their manifestations.

In the definition of psychopathology which has been given above, the word "explain" is used in the sense in which it constitutes the goal of scientific method. Karl Pearson, in his classical "Grammar of Science,"[2] has analysed the fundamental features which distinguish science from all other attempts to deal with our experience, and the principles which he enunciates will serve as a standard whereby the claims of psychopathology can be tested and appraised. The essential character of science resides, not in the nature of the facts with which it deals, but in the method of attack which it employs. This method consists in three successive steps. Firstly, the observation of phenomena; secondly, the orderly arrangement and classification of the facts which have been observed; and thirdly, the finding of "laws" which will serve to explain those facts and enable us to predict and control the occurrence of future phenomena of the same order. A body of knowledge which has traversed only the first two steps has attained to the level of a descriptive science, but it is imperfect and inadequate until it has succeeded in passing on to the third step. This third step involves a transition from phenomena to concepts. The "laws" which it formulates are not phenomena which can be observed in nature, but are constructed by the human mind in order to account for those phenomena. They are, in other words, conceptual abstractions whose sole claim to validity is that they do explain the observed facts. The history of our knowledge of planetary motion evolved from the observation of the successive positions occupied by the planets, through the classification of those positions by Kepler whereby it became apparent that the planets moved in ellipses round the sun, to the construction of the law of gravity by Newton which explained in a single and comprehensive formula the track and relations of the planetary movements. It is to be noted that the "laws" whose development constitutes the third step of science are not only conceptual in character, but are frequently built up of imagined entities which cannot possibly be observed, and may even involve qualities contradicting our general experience. For example, the phenomena of light are explained by the assumption of a weightless and frictionless ether, which not only cannot be observed but is imagined to possess qualities differing from those shown by every substance which has been observed. This freedom from the trammels of phenomenal reality which scientific conceptions claim to exercise will be found to be a point of fundamental importance when we have to consider the justification of such psychopathological concepts as the "unconscious." It is necessary to remark that this freedom is only relative. Science does not entitle us to construct conceptions built entirely in the air, but only such as conform to the rigid procedure of its method. That is to say, they must explain the observed facts, they must not be contradicted by other facts, and they must be capable of verification by repeated reference to experience and experiment. The theory of light, for example, assumes an ether and the movement of its particles according to the laws of wave motion, but it only has scientific validity because every time we test our calculations by reference to experience and experiment we find that the phenomena observed are precisely what the theory would anticipate them to be. In other words, the validity of a scientific conception is measured by the service it is able to perform in the understanding, the prediction, and the control of the facts of our experience. So long as it can do these things it has a place in science, but when the advance of our knowledge shows it to be inadequate in these respects or capable of being replaced by some wider and more satisfying conception it is to be ruthlessly scrapped.

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[1] Drever: Instinct in Man, second edition, 1921, p. 9.

[2] Karl Pearson: The Grammar of Science, 1892.

### PSYCHOLOGICAL FACTORS IN ANCIENT AND PRIMITIVE MEDICINE.

This digression to the basic principles of science has been necessary in order that we may have at our disposal a definite standard whereby to assess the history and achievement of psychopathology, and with this in our possession we may now pass on to the proper subject of our inquiry. The first task to be attempted will be a summary review of the history of medicine with the object of discovering the beginnings of psychopathology, and the observations and conceptions which have served as the chief stones in its building. It may be said at once that psychopathology is a science of comparatively recent growth, and that hardly any traces of it are to be found before the middle of the nineteenth century. This may seem a strange statement in view of the prominent part played by apparently psychological procedures in medicine from the very dawn of history, and the oft-repeated assertion that psychotherapy is the oldest form of medical treatment. Nevertheless, a perusal of the facts in the light of the general principles already laid down will show that it is substantially true, and that to regard the views and practices of early medicine as the first stages in the development of psychopathology is historically and logically false.

If we look back to ancient medicine we find everywhere the same essential picture, disease regarded as the work of demons or of magic, and a corresponding treatment by the aid of incantations, charms, and exorcisms. Side by side with these demonological conceptions and therapies, however, there existed a certain number of simple surgical practices, and a herbal lore in which, amongst masses of extraordinary and revolting ingredients, one finds the names of drugs of undoubted efficacy and value. The Ebers papyrus (1550 B.C.),[3] for example, describes the incantations used in Egyptian medicine, but it also contains a list of remedies including such familiar drugs as opium, hyoscyamus, squills, and castor oil. The records of Babylonian medicine show a similar demonological view of the causation of disease, and detail the litanies and incantations necessary for its treatment. Diagnosis is closely connected with astrology, and is made by the interpretation of omens. "In the Old Testament disease is an expression of the wrath of God, to be removed only by moral reform, prayers, and sacrifice."[4] Yet in both these cases there is ample evidence of the use of simple surgical, herbal, and hygienic measures, apparently without relation to the supernatural conceptions applied to disease in general. It is, perhaps, legitimate to assume that the former originally developed on a basis of empirical observation essentially identical with that on which the structure of science was ultimately to be erected.

Primitive tribes existing at the present day show in their medical practice features closely comparable to those found everywhere in the medicine of antiquity. Disease is ascribed to the action of supernatural agents or of human magic, and treatment is carried out mainly by incantation, ceremonials, and exorcisms, but again we find a number of remedial practices, apparently divorced from the demonological theory and therapy, and including the use of drugs and such simple measures as poulticing and blood-letting.

There is definite evidence that in these primitive tribes demonological procedures are actually efficacious, and that by their aid disease may, in fact, be caused and cured. Rivers remarks, "There can be no question that such processes as I have recorded here are efficacious. Men who have offended one whom they believe to have magical powers sicken, and even die, as the direct result of their belief; and if the process has not gone too far, they will recover if they can be convinced that its spell has been removed. Similarly, one who has intruded on the haunt of a ghost or spirit will suffer, it may be, fatal illness, because he believes that he has lost his soul; and he will recover after the performance of rites to which he ascribes the power of restoring the lost soul to his body."[5] Now, it is true that in the light of modern knowledge such results as these can only be explained by the invocation of suggestion or some similar psychological process. But, as Rivers later says, "It is necessary . . . . to distinguish the production and treatment of disease by agencies acting through the mind from the knowledge that the measures used acted in this manner. Though remedies acting through the mind were probably the earliest to be employed by Man, the knowledge that the remedies act in this way is one of the most recent acquirements of medicine."[6] In other words, the remedies were not given as a result of the application of a psychological conception, but either on account of their supposed physical effect or in accordance with a magico-religious conception. It is probable that many of the successful results achieved by drugs at the present day owe that success to factors of a psychological order, but their use has nothing to do with psychopathology, although the latter may ultimately seek to utilise the results as facts of observation. Psychopathology is a body of knowledge, and it does not begin to exist until an attempt is made to explain the phenomena of disease in terms of psychological processes and by the aid of psychological conceptions. Practically no trace of such an attempt can be found in ancient or primitive medicine. It is to be noted, moreover, that in early medicine demonological conceptions and procedures were applied to all forms of disease indiscriminately, and not merely to those conditions which we now class as the psychoneuroses and psychoses.

The demonological methods of ancient medicine, therefore, form no part of the foundations from which psychopathology has arisen, although the results they achieved can now be best explained by psychological conceptions. The roots of psychopathology must be sought for elsewhere, and they are to be found in the soil from which all scientific medicine has grown. The search for these roots will be facilitated by taking as a basis Rivers's statement that the beliefs of mankind concerning the causation of disease fall into three categories: (*a*) human agency (magic), (*b*) supernatural agency, (*c*) natural causes.[7] In primitive medicine, ætiology and therapy are built almost exclusively on the first two—i.e., on magical and religious conceptions respectively. The category of natural causes hardly exists, but traces of it are, nevertheless, to be found in the domestic remedies and herbal lore which seem to have been employed everywhere side by side with the magical and religious practices.

It is this third category which contains science, although the latter is by no means co-extensive with a mere belief in the efficacy of natural causes. We shall see that it is possible to hold many beliefs about

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[3] Garrison: An Introduction to the History of Medicine, third edition, 1921, p. 49. I am heavily indebted to this invaluable work for a considerable number of the historical details contained in these lectures.

[4] Garrison: Op. cit., p. 54 ff.

[5] Rivers: Medicine, Magic, and Religion, 1924, p. 50.

[6] Rivers: Op. cit., p. 122.

[7] Rivers: Op. cit., p. 7.

"natural causes" which are certainly not cast in a scientific mould. Only with the gradual evolution of its peculiar method of attack did science succeed in building up a sharply defined body of knowledge within the general notion that disease was produced by natural causes rather than by magical or religious agencies. Now, psychology and psychopathology are, or claim to be, branches of science, and therefore their development was only possible from the third category, and not at all from the other two. The failure to appreciate this necessary axiom was the cause of the long retardation of psychology in the advance of the sciences, and its trammelling with religion and ethics.

The magical and religious categories of primitive medicine frequently crop up throughout later history, dominating the picture in the Middle Ages, and occurring sporadically even in modern times; for example, in Heinroth's doctrine that mental disorder is due to sin and in the present-day conceptions of Christian Science. But they lie altogether outside the path of development of scientific medicine, and our only interest here is in the gradual evolution of the category of natural causes.

### ORIGINS OF SCIENTIFIC MEDICINE.

In Greek medicine we note the beginnings of what may be termed a philosophical approach to the problems of medicine. Empedocles (504–443 B.C.) introduced the doctrine of four elements (earth, air, fire, and water) as the four-fold root of all things, and conceived health as the result of their balance, and disease of their imbalance, in the human body. Later Greek writers postulated various other elements and qualities from whose combinations and permutations disorder could ensue, leading up to the "humoral pathology" embraced by Hippocrates, with its four essential humors, blood, phlegm, yellow bile, and black bile.[8] In these theories of the Greeks we have an excellent example of a conception of disease which is certainly constructed within the category of natural causes, and is in no sense magical or religious, but which differs radically from the conceptions of science. It differs because it was not built up by the method of science. Scientific conceptions are imaginative constructions, but they must be erected on a solid basis of observed facts, and constantly tested by repeated descents from the plane of imaginative construction to that of experience and experiment. The Grecian theories are imaginative constructions built entirely in the air, and without any basis or control on the plane of observed facts. Fortunately at the same time a certain amount of empirical knowledge began to accumulate, the direct descendant of the herbal and other simple remedial measures of older times, but immensely assisted by the development of clinical observation with Hippocrates. We know now that it was from this empirical knowledge that the structure of scientific medicine was ultimately to arise, and not at all from the proud but futile philosophical theories.

It is not necessary for our present purpose to trace out in detail the later history of the rise of scientific medicine. After the temporary submerging of all progress in the scholasticism and deductive mental exercises of the Middle Ages, medicine again began slowly to move forward. By the seventeenth century empirical knowledge had largely increased, and theories were developing which bore some relation to facts of observation, and gradually became more and more consistent with the method of science. These theories were constructed, however, of physical, physiological, and chemical conceptions; there was as yet hardly a trace of the birth of any psychological conception, and any germs of it detectable were generally hopelessly entangled with magico-religious conceptions. Here and there, however, we may note the sporadic appearance of a genuine psychological point of view in such writings as those of Henri de Mondeville (1260–1320), who in his surgical treatise counsels his readers to "Keep up your patient's spirits by music of viols and ten-stringed psaltery, or by forged letters describing the death of his enemies, or by telling him that he has been elected to a bishopric, if a churchman"[9]—a piece of advice which is decidedly psychological if its ethical standard is questionable.

The actual historical line of development of the psychological conception in medicine has its roots, though hardly its logical ancestry, in the seventeenth century views and practices with regard to animal magnetism, and the personal power of healing. The ground for this statement is that, although none of these procedures were employed as the result of a psychological conception of disease or of therapy, and none of them form part of the actual building of psychopathology, yet they led to the observation of certain phenomena which were ultimately incorporated in the conception of suggestion, the conception which may be regarded as the foundation-stone of modern psychopathology.

### "MAGNETISM" AS A HEALING FORCE.

The notion that magnetism was a force capable of influencing the human body, and of being used for curative purposes, is found far back in the history of medicine, but it was in the seventeenth century that it became elaborated and systematised. In 1608 Rudolph Goclenius,[10] a follower of Paracelsus, wrote of the magnetic treatment of wounds. The general curative powers of magnetism were described by Athanasius Kircher in 1643,[11] and in 1679 William Maxwell[12] produced a comprehensive account of magnetic therapy in which he propounded the theory that all disease is due to the withdrawal of vital fluid from the organs and can be remedied by restoring the necessary magnetic force. The theory of animal magnetism was therefore actually in existence long before the time of Mesmer, although its origin is often erroneously ascribed to him.

The personal power of healing is also a doctrine of extreme antiquity, and records of its use may be traced throughout history right down to the present day. The power has generally been held to be the prerogative only of certain persons, particularly royalty, and the "Royal Touch" for the cure of disease was frequently employed by English and French sovereigns up to the reigns of Queen Anne in this country and of Charles X. in France.[13] In the seventeenth century the closely similar procedure of treatment by "stroking" was carried out by less exalted persons, and Valentine Greatrix or Greatrakes acquired fame by the great number of cures which he effected by this means. In a print in my possession he is represented as treating a boy by stroking the patient's head with his two hands and is described as "famous for curing several deseases and distempers by the stroak of his hand only." One can hardly contemplate this print and its legend without being reminded of the methods employed later for the production of hypnosis, and the place of such practices as a stage in the ultimate development of hypnotism and the conception of suggestion cannot be doubted.

In 1766 Mesmer produced his thesis "De planetarum influxu," dealing with the influence of the planets on the human body, an influence which he believed to be due to a universal magnetic fluid. The distribution of this fluid in the body, upon which depended health or disease, could be altered by the will of another person, and cures thereby effected. It will be observed that this theory is substantially identical with that which had been proposed by William Maxwell nearly a hundred years earlier. Mesmer attempted to put his ideas into practice in Vienna and various other towns, but it was not until his removal to Paris in 1778 that he began to achieve success. Here he opened a clinic in which he treated all kinds of disease by "animal magnetism," under conditions in which it is difficult to avoid suspecting a considerable admixture of charlatanism with the sincerity which we may reasonably attribute to him. The patients were seated round a tub, the "baquet," containing various chemicals and protruding iron rods which were applied to the portion of the body affected, the room was darkened, music was provided, and Mesmer appeared in a lilac robe, passing from one patient to another and touching them with his hands or with his wand.[14] Whatever we may think of Mesmer's methods there can be no doubt that results were produced, and during the following half century animal magnetism attained an immense vogue. Magnetic societies were founded in Paris and many other towns, several journals entirely devoted to the subject appeared, and a great number of books were published. Phenomena of this kind do not necessarily indicate that a movement has any solidity or value, as we have melancholy reason to know in our own time, but it must be remembered that many of the advocates and investigators of magnetism were men of undoubted ability, knowledge, and standing, and that these men were absolutely convinced that a discovery of the first importance had been made. The reason for this remarkable circumstance is that the observations upon which the magnetisers built their theories were actual facts, facts which could be repeated and tested indefinitely, and, moreover, facts which were new, or at any rate newly appreciated. The theories were no doubt fantastic, but the facts were sound, and it was upon these facts that the building of psychopathology ultimately began.

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[8] Garrison: Op. cit., p. 80 ff.

[9] Quoted by Garrison: Op. cit., p. 140.

[10] Goclenius: De magnetica curatione vulneris, 1608.

[11] Kircher: Magnes sive de Arte Magnetica, 1643.

[12] Maxwell: De medicina magnetica libri, 1679. Quoted by Janet, Psychological Healing, English translation, 1925, p. 30.

[13] Crawfurd: The King's Evil, 1911.

The facts observed by the magnetisers in the course of their investigations may be said to have included practically all those taken up or rediscovered by the hypnotists of a later age. Amongst these phenomena may be mentioned the production and removal at the will of the magnetiser, of anæsthesias, paralyses, hallucinations, and somnambulisms, and the carrying out of what are now termed post-hypnotic suggestions, that is to say, the performance at some prescribed later time of an action commanded by the magnetiser during the magnetic state. The chief concern of the magnetisers was with therapeutics, but it is interesting to note that, although Mesmer and some of his followers applied their methods to all forms of disease, subsequent workers soon recognised that magnetic phenomena and curative results were best induced in neuropathic subjects. This circumstance indicates the first narrowing down to the definite path which ultimately led to the psychogenic conception of certain disorders.

The observations of the magnetisers were undoubtedly genuine and accurate, but they explained them by a theory which was already old, and which was certainly inadequate, the assumption of a magnetic fluid which passed between the operator and the patient. Teste,[15] for example, explained suggested blindness for a particular object as due to the magnetic fluid being placed round the object in question and thereby rendering it invisible. Nevertheless, the beginnings of a psychological conception were already apparent in the writings of the magnetisers. Janet[16] has pointed out that many of them distinguished clearly between the peculiar state (état hypotaxique) induced in the patient, and the actual suggestions (phénomènes idéoplastiques) which could be realised in that state. The magnetic fluid was invoked by these writers solely to account for the former, the latter being explained in purely psychological terms. The distinction corresponds precisely to that existing between the hypnotic state on the one hand, and the phenomena of suggestion which can be observed while it is present on the other hand, and it must be confessed that we are still far from having achieved a satisfactory understanding of the hypnotic state itself. It should be noted, moreover, that the magnetic theory which sought to explain it is not intrinsically absurd; the conception of animal magnetism is not in itself more fantastic than the assumption of a weightless and frictionless ether to account for the phenomena of light. Nevertheless, it failed because it was not constructed according to the method of science, and because it was found to be incompatible with many of the facts subsequently provided by experience and experiment.

### BRAID AND HYPNOTISM.

Psychopathology has descended, not from the magnetic theory, but from a reconsideration of the phenomena observed during the magnetic state. The psychological explanation of these, already foreshadowed in the works of some of the earliest magnetisers, was made more precise by Bertrand in France and by Braid in this country, and with these writers the conception of suggestion may be said to have definitely arisen. Braid put forward several theories in the course of his career, veering round gradually from a conception of the facts of mesmerism which was entirely physiological to one which was essentially psychological. He showed that the anæsthesias, paralyses, and other phenomena which had been ascribed to the action of magnets, metals, and peculiar passes were due to none of these things, but merely to the suggestive effect of the ideas aroused in the patient's mind by the operator's words and gestures. He reached the conclusion that "hypnotism," a word first proposed by Braid as a substitute for the formerly employed "mesmerism," and the phenomena to be observed during the hypnotic state, were produced by suggestion and to be explained by purely psychological principles.

It is difficult to disentangle from the complicated medical history of the first half of the nineteenth century a decision as to whom the actual credit of priority in this conception should be given. There can be no question that many of the earlier French writers had foreshadowed it, and the claims of Braid have been disputed.[17] It is clear, at any rate, that with the publication of the latter's "Neurypnology" in 1843 the conception of suggestion had been definitely established. The formulation of this conception is the historical foundation-stone of psychopathology. From it the whole structure can be traced, including all the schools which at present hold the field. Many of these schools diverged early from the simple conception of suggestion along an independent road, which will be subsequently considered in detail. For the moment, however, our concern will be to describe the later history of the concept of suggestion itself, and to arrive at an estimate of its value and place in medicine.

The investigation of hypnotism languished after the time of Braid, and it played but little part in medicine until its resuscitation by the studies of Charcot and of Bernheim in the 'eighties of last century. The place of Charcot in this history provides a pathetic picture of the irony of fate. A neurologist and a man of science, with a keen appreciation of the necessity of exact clinical observation and the establishment of objective facts, he constructed, apparently by the very use of these accurate methods, a body of doctrine which was even more false than that of the magnetisers, and which subsequent research has almost totally demolished. As a result of a rigid investigation of the phenomena described by the old magnetisers, carried out by himself and by his pupils at the Salpêtrière, in particular Paul Richer, the author of a monumental work on "Grande Hystérie,"[18] it was concluded that hypnosis was a condition capable of being produced purely by physical means; that it comprised three distinct stages, lethargy, catalepsy, and somnambulism, each stage being initiated and terminated by definite physical procedures—e.g., catalepsy by forcing open the patient's eyes, somnambulism by rubbing the head; that magnets and metals had a specific action in causing and removing anæsthesias and other phenomena; and that hypnosis was only found in association with hysteria and was practically identical therewith. These conclusions were based on the repeated examination of a small number of patients, all hysterics, at the Salpêtrière. From the standpoint of our later knowledge they afford an instructive and remarkable example of the extent to which observations made with extreme care and accuracy can be misapprehended and vitiated by the adoption of too narrow an angle of approach We know now that the effective agents were not the magnets and the physical procedures, but the words of the operator and the expectations of the patient; that the three stages were only an artificial result of the drilling and training to which the patients had been subjected by constant exhibitions and demonstrations, and that the physical procedures which produced them could be replaced by a word or any other agent in whose efficacy the patient had implicit faith. It is true that Charcot was acquainted with the conception of suggestion, but it is clear that he had no adequate understanding of its extent and application, and this fundamental omission was responsible for the complete ruin of the structure so laboriously erected. We need hardly note that the work of the Salpêtrière school in the domain of hypnotism contributed but little to the building of psychopathology, although, as we shall see later, Charcot's investigation of hysteria played a much more important part.

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[14] Janet: Psychological Healing, translated by E. and C. Paul, 1925, p. 30 ff.

[15] Teste: Magnétisme expliqué, 1845.

[16] Janet: L'Automatisme Psychologique, 4th ed., 1903, p. 143.

[17] G. Milne Bramwell: Hypnotism, its History, Practice, and Theory, third edition, 1913; and Janet, Psychological Healing, 1925, p. 156 ff. The latter work contains a valuable critical review of the history of magnetism and hypnotism.

[18] Richer: Etudes cliniques sur la grande Hystérie, 2nd ed., 1885, p. 505 ff.

### BERNHEIM AND SUGGESTION.

The work of Bernheim, on the other hand, is in the direct line of the history we are endeavouring to follow He owed his introduction to the study of hypnotism to Liébault, a practitioner who had for some years carried out hypnotic treatment in Nancy, but it may be said that essentially he repeated the observations of Braid and arrived at conclusions practically identical with those of the latter, although amplified and extended in certain important directions Bernheim's book,[19] published in 1884, marked the appearance of a school of thought radically opposed to that of the Salpêtrière, and one which finally led to the complete overthrow of Charcot's views. The chief tenets of this school, the Nancy school as it is generally termed, are that all the phenomena observed by the old magnetisers, by the hypnotists, and by the Salpêtrière investigators are the result of suggestion, and the hypnotic state only a condition of somnolence with increased suggestibility, itself produced entirely by suggestion. Hypnosis is not a pathological phenomenon only to be found in hysterics, but a state which can be developed in the vast majority of normal people. Moreover, suggestion is a universal factor in mental life, it can and does act in everyone every day, and it can produce results, including therapeutic effects, without the intervention of hypnosis. Bernheim's wide conception of the place of suggestion has been aptly summarised by Milne Bramwell. "In other words, everyone is suggestible, and if you take someone and suggest to him to become more suggestible, that is hypnotism! Thus, suggestion not only excites the phenomena of hypnosis, but also explains them."[20]

We shall find later that there is ample ground for criticising the immensely extended part ascribed to suggestion by Bernheim, but we may pause here to note the marked effects which his view has exerted upon the subsequent development of psychological medicine. It has been responsible for a greatly increased recognition of the incidence and power of psychogenic factors in medical practice. This has been accompanied by the first clear appreciation of the suggestive character of many of the procedures of primitive medicine, and an understanding of, at any rate, one of the factors whereby those procedures attained success. Moreover, this viewpoint has been extended to the therapeutic practices of modern medicine, and has called attention to the necessity of differentiating the possible suggestive effects of drugs and other measures from the specific action which is ascribed to them On the other hand, it has led to a superficial use of the word suggestion as the explanation of all things psychological, and to an unfortunate tendency in the uninstructed to identify the entire spheres of psychopathology and psychotherapy with suggestion.

After Bernheim the historical development of suggestion has travelled along two roads which, although obviously closely connected with one another, have to some extent proceeded independently, the therapeutic and the ætiological. That suggestive therapy should have marched along a road largely independent of ætiological investigation is, indeed, a remarkable fact, and one which silently points to the inadequacy of such progress, but it is nevertheless true. Correlated with it is the further circumstance that the later writings on suggestive and hypnotic therapy show but little advance beyond the standpoint reached by Bernheim. Methods have been rendered more precise, and there has been a general though vague recognition that the methods are mainly applicable in certain types of disorder only —namely, the psychoneuroses Some of the writers have, moreover, concerned themselves with the mechanism of suggestion, but the general tendency has been to adopt suggestion as a kind of universal drug for the relief of symptoms, with scant investigation and discrimination of the causal processes responsible for those symptoms

Bernheim's recognition of the fact that suggestion can be applied without hypnosis has produced a differentiation of methods into hypnotic and non-hypnotic, the latter comprising frank verbal suggestion in the waking state, and suggestion by what may be termed a "vehicle," that is to say, the deliberate use of electricity, drugs, or other measures, not for their specific effect, but as a means of introducing a suggestion into the patient's mind.

Throughout the history of suggestion the observation has frequently been made that results were sometimes apparently produced by ideas originating in the patient's mind and without the intervention of a second person, the term "auto-suggestion" being finally evolved to indicate a process of this kind. This observation has, in recent years, become the basis of a school of therapy which, under the leadership of Coué and with the aid of the more or less systematic expositions of Baudoin[21] and other followers, has at the present time achieved a great vogue. Beyond, however, some interesting fresh formulations of familiar facts, this school does not seem to have contributed anything essentially new to our former knowledge.

It may be remarked that the waves of popularity which have marked the progress of mental therapy are an instructive object-lesson. Animal magnetism rose to an immense vogue and fell, hypnotism has risen and declined at least twice, Couéism and auto-suggestion are at the apex of a wave to-day, and a closely allied surge may be seen in the astonishingly immense developments of Christian Science, New Thought, and other doctrines It may be concluded that all these movements derive their temporary vitality from the undoubted fact that they do produce results, and therefore include somewhere within them principles of actual objective validity. We may call these principles faith and suggestion, but in this wide sense such terms are little more than a cloak for our ignorance. Whatever these principles may be, it is clear that they are of vital concern to medicine, and it is the duty of medicine to dissect them out from their trappings and allot them a defined place in our therapeutic armoury.

The second road along which the conception of suggestion has travelled concerns its application as a weapon of explanation in the causation of disorder. It was early perceived that suggestions were not only capable of removing symptoms, but also of producing them. Charcot, in his investigation of hysteria, came to the conclusion that certain of its phenomena were directly due to "ideas," an observation which, as we shall see, had an immense importance in directing the later development of psychopathology. Subsequent writers have endeavoured to show that these "ideas" were dependent, both in their origin and effect, upon the action of suggestion. This notion reached its full development in Babinski,[21] for whom the whole clinical picture of hysteria was nothing but a manifestation of the results of suggestion. We may remark here that Babinski's view, though true enough as far as it goes, is so vague and superficial as to be of little service to our understanding of the complex problems of hysteria, but a more detailed examination of its validity must be postponed until we have considered the position of the conception of suggestion as a whole. Suggestion is the first definite psychological conception which has been contributed to medicine, and it is therefore of fundamental importance that its nature and value should be accurately appraised. This problem cannot be attacked, however, until some general principles have been laid down to serve as a standard and test, and for this purpose it will be necessary to diverge for a moment from our direct path.

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[19] Bernheim: De la suggestion dans l'état hypnotique et dans l'état de veille, 1884. [20] Milne Bramwell. Op. cit., p. 309

[21] Baudoin Suggestion and Auto-Suggestion, English translation, 1920

## THE PLACE OF PSYCHOLOGICAL INTERPRETATIONS OF DISORDER IN MEDICINE.

At the commencement of this lecture psychopathology was defined as an explanation of disorder by psychological conceptions, and it was pointed out that such an explanation must be sharply distinguished on the one hand from clinical psychiatry, and on the other hand from an interpretation of mental disorder by physiological conceptions. The question was left over, however, as to whether the explanation of disorder by psychological conceptions which psychopathology attempts is either possible, justifiable, or capable of forming a part of scientific knowledge. This question must now be taken up because, until it is answered, we have no sure ground from which suggestion and the later contributions of psychopathology to medicine can be judged.

The problem at issue is essentially a part of the wider problem as to whether psychology and interpretations in psychological terms have a right and a place in science. This claim was for a long time disputed, the opposition reaching its culmination in the materialistic philosophy of the nineteenth century scientists, who held that psychology dealt with non-material and non-spatial processes which were "epiphenomenal" and "unreal," and therefore incapable of scientific treatment. Their view arose from two bases, the first being the unsatisfactory condition of the psychology of those days, for it was then an arm-chair production achieved by methods radically distinct from those which were proving so successful in the building of chemistry, physics, and other sciences; while the second base was a total misapprehension of the real nature of science. This misapprehension was cleared away by the work of Karl Pearson and other investigators who, as we have seen, showed that science is characterised, not by the nature of the facts with which it deals, but by the method of its attack, and that this method consists in the collection of facts, the classification of the facts collected, and finally the construction of conceptions which serve to explain those facts. Clearly there is nothing in this definition to exclude from the field of science mental as opposed to material facts, nor psychological as opposed to other conceptions. The sole criterion which science demands is that the facts must be rigidly observed, and the conceptions must be constructed according to the rules of scientific method. So soon as these simple principles were grasped it was obvious that psychology had a right to contribute its quota to the scientific understanding of life and behaviour.

The behaviour of living organisms has been attacked by several branches of science, each regarding the phenomena from its own standpoint, and interpreting them in terms of its own concepts. Biology, for example, interprets the phenomena in terms of life processes and biological laws, physiology in terms of nervous energy, reflex action, and so forth, chemistry in terms of the interaction of chemical compounds. The essential point which it is desired to emphasise is that there is not one science of living organisms, but a number of different methods of approach, each striving to deal with the phenomena by the aid of its own concepts, and measuring its success solely by the extent to which it achieves the explanation and the control of those phenomena. Psychology has established its claim to rank among these methods of approach, and to attempt an explanation of the phenomena by psychological conceptions, just as chemistry has a right to attempt an explanation by chemical conceptions. Each of these various and more or less independent methods of approach endeavours to attack as much of the field as it can, but it is found that while some of the phenomena are capable of explanation by the concepts of more than one branch of science, some can be more intelligibly and usefully explained by the concepts of one branch rather than by those of another, and some are at present capable of explanation by the concepts of one branch only. When the concepts of one branch are less comprehensive and widely applicable than those of another there is always a hope that the former will ultimately be reduced to the latter. For example, we may reasonably anticipate that the concepts of nervous energy and reflex action will ultimately be reduced to the concepts of chemistry and physics. But such a reduction is mostly a goal of the future, and for the present each branch must be content to explain whatever phenomena it can in terms of its own concepts.

Now all these privileges and limitations appertain to psychology in the same measure as they appertain to the other branches of science which are attacking the problems of living organisms. Equally with the latter, psychology must be allowed to formulate its own concepts, and the value and validity of these must be tested solely by their capacity to explain and predict the phenomena, or, in other words, by what can be done by their aid. Again, we may look forward to a time when it may be possible to reduce the conceptions of psychology to the wider concepts of physiology or the still wider concepts of chemistry and physics. But this desirable consummation is brought no nearer by the expedient of pretending it has been attained. There are many phenomena for which at the present time no other science than psychology can devise a feasible explanation, and many others in which psychological conceptions are more illuminating and helpful than physiological. We shall see that this statement applies to certain phenomena of disease, and so long as it holds we must gratefully accept what assistance psychology is able to offer us, provided the assistance is built up by a rigid application of the method of science. It is not that a psychological explanation is right and a physiological explanation wrong; it is merely that in certain spheres it is more profitable to employ a psychological than a physiological conception. Similarly, if we talk of a disorder as psychogenic it does not mean that no physiological, chemical, or physical explanation will ultimately be possible, but only that with our existing knowledge a psychological explanation is more useful. In other words, a psychological conception of a disorder may enable us to understand and treat our patients, and if it does so it is sound science and sound medicine, far sounder than the construction of a quasi-physiological hypothesis built altogether in the air, without relation to any observed facts, and with which it is possible to accomplish nothing. It would seem almost unnecessary to labour these simple and obvious facts, but the quaint notions of the Victorian philosophers concerning the reality of nervous energy and the futility of ideas are not entirely extinct even in the medicine of to-day.

## THE PLACE OF SUGGESTION IN MEDICINE.

Armed with these general principles we may now return from our digression into the philosophy of science, and take up again the consideration of the conception of suggestion. Clearly this conception is based on observed facts, and it enables us in some measure to explain and to control the facts. Therefore, so far as its form is concerned, it is validly constructed according to the method of science and, as it is entirely couched in psychological terms, it is entitled to a place in psychopathology. Its precise value, however, must be determined by a consideration of the facts which it claims to interpret, and its capacity to resume and explain those facts.

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[21] Babinski et Froment: Hystérie-Pithiatisme et troubles nerveux d'ordre réflexe, 1917.

If we examine the phenomena for whose explanation suggestion has been invoked we find that these are extraordinarily numerous and diverse. When Bernheim was developing his theory that the facts of animal magnetism and hypnotism were attributable to suggestion, he made that conception so wide that Milne Bramwell was constrained to remark "In Bernheim's hands the word 'suggestion' has acquired an entirely new signification, and differs only in name from the 'odylic' force of the mesmerists. It has become mysterious and all-powerful and is supposed to be capable, not only of evoking and explaining all the phenomena of hypnotism, but also of originating—nay, even of being—the condition itself."[23] Since those days the limits have been pushed wider still; Babinski holds that suggestion is responsible for all the phenomena of hysteria, other writers use it to explain practically every symptom met with in the psychoneuroses. Others, again, maintain that all the methods of psychotherapy, however diverse they may apparently be, depend entirely for their effect upon the explicit or implicit use of suggestion. Finally, psychologists tell us that suggestion is a normal process in the human mind, and some believe that it explains our religious and political views, our caprices, and our prejudices. Now it is plain that a causal principle which is invoked for the interpretation of so many radically diverse phenomena must be a factor so widespread and universally active that it is a quite inadequate explanation of any particular phenomenon. We may suspect, indeed, that for many writers the word suggestion means little more than a vague recognition that a certain phenomenon is to be attributed to a psychological cause. Obviously, however, if suggestion is to be a concept of value in science or in medicine it must be brought within much narrower limits than these; and in recent years many attempts have been made to arrive at a definition marking off a limited and homogeneous group of mental processes. It cannot be said that any of these attempts has achieved an entirely satisfactory result, but we have at least attained a more precise knowledge of the various processes which have been at one time or another subsumed under the term suggestion. Among these processes are some—for example, the simple communication of an idea from one person to another—which are so general and elementary that they have no value as part of a limited concept. Another process, the influencing of thought and action by the existence of emotional systems which tend to inhibit ideas inimical to the goal of the emotional system and to enhance those in consonance therewith, is so universal that it does not take us far in the understanding of any particular phenomenon unless the precise nature and mode of action of the emotional system involved is stated. It is this process that is no doubt partly responsible for our politics, prejudices, and indeed for much of our mental activity. Suggestion, however it may be defined, is certainly to be regarded as one of its manifestations, but unless the term can be limited to a particular area of this very wide field it cannot have much value as a weapon of explanation. One possible limitation is to include in suggestion only the process whereby an idea[24] which has been communicated from one person to another undergoes a further development and realisation in the mind of the second person owing to the inhibition of all ideas which would normally counteract it, this development and inhibition being due to the existence of a peculiar affective relationship between the two persons. This sense would correspond to that in which the term is used to indicate a particular therapeutic procedure carried out by a physician upon his patient, and it would include a considerable number of the phenomena commonly attributed to suggestion in everyday life, but it would clearly not be applicable to any and every process generated by an emotional system. Another possible limitation is to indicate by suggestion only the process whereby an idea undergoes development and realisation owing to the inhibition of counteracting ideas. This is, of course, a much wider concept than the last because it does not specify that the force responsible for the inhibition arises from the affective relationship between two people, but permits of any force playing this part. It would therefore include auto-suggestion, and the mechanism which Babinski conceives to be responsible for hysterical symptoms, as well as a great number of other phenomena—in fact, practically all those which we have already characterised as the result of the working of an emotional system.

It is impossible here to enter into these complicated questions in detail,[25] but enough has been said to show that suggestion is by no means the exact and definite conception which it is sometimes thought to be, and that it is used by writers in senses which are materially different both in their connotation and denotation. Probably the central kernel of all these various usages is the development and realisation of an idea owing to the inhibition of counteracting ideas by some affective force. This is undoubtedly a process of great practical importance, and a single term to indicate it would obviously be convenient. Processes of this kind are so universal, however, that their recognition will only give us a superficial understanding of any individual phenomenon unless we are in a position to go further, and can specify the affective force concerned, and the precise mechanism whereby certain particular ideas are developed while others are inhibited. When Babinski tells us, for example, that the symptoms of a hysterical patient are to be explained by suggestion, the statement is true enough if suggestion is taken in the general sense which we have described, but it leaves out almost everything worth explaining: why this particular patient is so abnormally suggestible, what is the particular emotional force responsible for the suggestion, and why he has developed just these symptoms and not others.

We may conclude, therefore, that suggestion is a legitimate psychopathological conception, provided that it is used in one or other of the defined and limited senses indicated, but that it only takes us one step towards the solving of the problems we have to meet. This one step, indeed, is of supreme importance, because it carries with it the recognition of the psychogenic origin of certain disorders, and implies all the significant changes in medical theory and practice which must inevitably follow from that recognition. Nevertheless, to regard suggestion as a completely satisfying explanation of the clinical picture presented by an individual patient would be as futile as to regard the electric current proceeding from a water-driven dynamo as completely explained by the law of gravity. It is owing to this superficial character of the conception they employ that the later history of the suggestionist schools has been comparatively sterile. They have developed some useful practical methods, but in the understanding of patients and their illnesses they have progressed but little beyond the standpoint of the early hypnotists, or indeed, of the early magnetisers. For this understanding we must turn to schools whose conceptions are more detailed and precise than that of suggestion.

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[23] Milne Bramwell: Op. cit., p. 337.

[24] The term "idea" has been deliberately employed in this passage because of its conveniently elastic significance, though it may be objected that it savours of an old and exploded psychological theory.

[25] See Bernard Hart: The Methods of Psychotherapy, Proc. Roy. Soc. of Medicine, 1918. A valuable review of the whole problem will be found in Dr. Ernest Jones's paper, The Nature of Auto-Suggestion, Brit. Jour. of Med. Psychol., 1923.

# EARLY PUERPERAL RETROVERSION.

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Retroversion of the uterus may give rise to a variety of symptoms. Unfortunately the enthusiastic advocates for its correction have made the subject a highly controversial one, and yet all will agree that a proportion of women with this displacement have definite symptoms, which may be relieved by replacing the uterus in its correct position. It has long been recognised that during the puerperium the recent stretching of the pelvic tissues makes it easy for the uterus to assume an abnormal position, and that many cases of retroversion may begin at this time. Most of the standard text-books on obstetrics suggest that retroversion is only likely to occur if some predisposing cause arises during the puerperium, subinvolution of the uterus and retention of urine being the two most often mentioned. That this is not so a consideration of the present series will show.

### *Method of Investigation.*

This investigation was carried out in 1922 at the Greenwich Borough Council Maternity Home, and 122 consecutive cases were considered. Although this home was intended for all cases of labour, there was a rather high proportion of abnormal labours, as is usual in lying-in homes. The patients were, in most instances, admitted at the onset of labour, allowed out of bed on the 10th or 11th day, and discharged on the 14th or 15th day after labour. On the 13th or 14th day after labour a routine examination of the pelvic organs was made. The night before this examination an aperient was given, and immediately before it the bladder was emptied. If anything abnormal was discovered, arrangements were made for re-examination after an appropriate interval.

*Labours.*—Of the 122 cases 65 were multiparæ and 57 primiparæ. The following abnormalities were noted: 5 cases of contracted pelvis (1 treated by Cæsarean section, 4 by induction of premature labour), 1 severe accidental antepartum hæmorrhage, 2 cases of placenta prævia, 1 pregnancy complicated by fibromyomata of uterus, 1 pregnancy complicated by ovarian cyst, and various other less important complications.

During the puerperium every endeavour was made to avoid the occurrence of retroversion. The patients were sat up early, and great care taken to prevent retention of urine and to treat it early if it occurred. Special instructions were given to the nurses on the importance of not pressing the uterus backwards in the course of routine examination. At the postnatal examination the following abnormalities were noted: retroversion of the uterus, 8; subinvolution, 4; fibromyomata of uterus, 1; ovarian cyst, 1; pelvic thrombosis, 1. The cases other than retroversion are not considered in this paper, but it is of interest to note that they were all re-examined four weeks later, and in no instance was the uterus found to be retroverted.

As there is some difference of opinion on the subject, it may be well to give the following definition. A uterus was considered to be retroverted if the body was found lying in the pouch of Douglas. Minor alterations of position relative to the normal were not included under this term. Of the eight patients in whom the uterus was found to be retroverted, four were multiparæ and four primiparæ. The following were the only abnormalities noted in these labours: one anencephalic monster, one stillborn macerated fœtus (36 weeks), and one low forceps for uterine inertia. In every case the puerperium was afebrile. The standard of morbidity was a high one—namely, any rise of temperature to over 100° F. after the first 24 hours. In no instance did retention of urine occur.

### *Procedure Adopted at Postnatal Examination.*

If the uterus was found to be retroverted an attempt was made to antevert it bimanually. If this succeeded the patient was turned on to her face and remained lying in that position for two hours. The next day she was examined again, and if the displacement had recurred a ring pessary was inserted after anteverting the uterus. All cases in which any abnormality was noted were re-examined a month later.

The results of this procedure were as follows. In four cases anteversion was easily performed at the first attempt, and did not recur during the first six weeks of the puerperium. One case was similar, except that she was not examined until the 21st day of the puerperium on account of a perineal laceration. In one case in which some difficulty was encountered in anteverting the uterus a ring pessary was inserted at the first examination. A month later the position of the uterus was good, and the pessary was removed. After another month the uterus remained anteverted. In one case anteversion succeeded and at re-examination next day the uterus was still anteverted; when seen a month later retroversion had recurred. This was corrected and a pessary inserted, and subsequent examinations showed that the uterus remained in its normal position after the pessary had been in for two months. In one case all attempts at anteversion failed. This case was watched, but as no definite symptoms resulted, no further treatment was considered advisable. This simple procedure, therefore, resulted in seven successes and one failure.

### *Discussion.*

On examining the pelvic organs on the 14th day after labour a moderate degree of softening of the tissues was still present, the uterus was distinctly mobile. If during bimanual examination the uterus was gently squeezed in the majority of cases a little blood-stained mucus could be expressed through the cervix. In a certain number the amount of this fluid was increased up to about an ounce and the proportion of blood was increased. This was so in 14 cases in the present series. Although in five of these—four subinvolution, one fibromyomata of uterus—this was expected, of the remaining nine only one showed retroversion. These were all multiparæ, and clinically only two of them showed a corresponding alteration of the lochia. It is of interest to note that none of these cases, when examined a month later, showed a late retroversion.

### *Time at which Retroversion Occurs.*

Various writers have emphasised the frequency with which retroversion of the uterus occurs during the puerperium, but most appear to be of the opinion that the displacement does not take place so early as the end of the second week. Thus Prof. Whitridge Williams states "retroversion is rarely observed before the third week." He gives the total incidence as 20–25 per cent. Lynch, who has written probably the most exhaustive article on this subject, states that 41 per cent. of all cases showed retroversion of the uterus at some time during the 12 months following labour, 28 per cent. of this number were present one month after labour, the remaining 72 per cent. being discovered for the first time at some later date. Unfortunately this work was done before Lynch's article appeared, and so the importance of late retroversion was not appreciated. It may be noted, however, that none of the cases (15) examined later for some other condition showed this displacement. The degree of retroversion found in Lynch's series is not clearly defined.

At the end of the second week of the puerperium Webster gives the length of the puerperal uterus as 4 in., so that its size offers no theoretical objection to complete retroversion. That it can occur anyone may convince himself by bimanually retroverting a uterus, a manœuvre which can generally be done easily at this time. That the uterus will not stay in this position is interesting, and makes this little experiment justifiable.

The present series confirms the findings of other writers that no relation is found between the frequency of retroversion and the alleged contributory factors. Subinvolution, vaginal relaxation, multiparity do not particularly predispose, nor do the abnormalities of labour increase the incidence. No attempt is made to consider symptomatology in this short series.

### *Summary.*

1. Retroversion of the uterus occurs during the first two weeks of the puerperium in from 5–10 per cent. of all cases. 2. The incidence of this condition has no relation to the parity of the patient, type of labour, or abnormalities of the puerperium. 3. The displacement can easily be corrected, in most cases, by the simple routine described.

My thanks are due to Miss L. Beeham, matron of the home, for her help in this investigation.

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# HYPERTHYROIDISM TREATED BY X RAYS.

## A RECORD OF THREE HUNDRED PRIVATE CASES.

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A VAST and ever-increasing literature has grown up on the subject of hyperthyroidism, but "the explanations offered to elucidate the phenomena of thyroid disease are as a haystack of speculation in which the needle of truth is still at large" (Bram). The object of this short paper is not to add a new theory to the already bewildering collection, or even to attempt a résumé of the present state of knowledge (or lack of knowledge), but the comparatively modest one of recording the effects of X ray treatment on a series of 300 consecutive private cases of hyperthyroidism during the years 1912–23.

By hyperthyroidism is meant the pathological degree described by Parry, Basedow, Graves, &c., though all the cardinal signs mentioned by these authorities are not necessarily present in every case. A great number of cases have been, and are being treated by X rays, and much has been written on the subject. It has, nevertheless, been found difficult to ascertain the numbers treated and the percentage of recoveries.

In 1912[1] Florence Stoney recorded 41 cases and in 1921[2] a further report on 200 cases was presented. In 1920[3] Burrows and Morison gave the comparative results of 200 cases, half of which were treated by radium and half by X rays. These latter are included in the authors' compilation, and it is interesting to note that, after a lapse of five years, these results showed no relapses.

### *The Authors' Cases.*

These have been tabulated by one of us (F. M. F.), who has never been engaged in radiological practice. The paper is based on an experience of 2700 hospital and private patients. The tabulation of the 300 private cases was effected by taking the notes of all patients who had been discharged or who had ceased treatment. So far as we can tell, a larger number would not have altered the figures to any extent. The hospital results, however, would certainly come out in a much less satisfactory manner, for it is obvious that home conditions have an enormous influence on the chances of recovery.

The responsibility for the diagnosis rests on the physicians who referred the cases for treatment, a very large proportion of them having passed through the hands of Prof. G. R. Murray.

The results are as follows:—

| | Numbers. | Per cent. |
|---|---|---|
| Cured, or good functional result | 190 | 63·3 |
| Improved | 75 | 25 |
| Not improved | 15 | 5 |
| Lost sight of | 20 | 6·6 |
| Total treated | 300 | 100·0 |

Of these cases, 11 have since died from intercurrent disease and 8 from hyperthyroidism. The series of Burrows and Morison (loc. cit.) may be compared with these.

| | X rays. | Radium. |
|---|---|---|
| Perfect | 27 | 20 |
| Good functional | 49 | 20 |
| Improved | 20 | 40 |
| Not improved | 4 | 20 |
| | 100 | 100 |

Dr. Stoney's results do not differ materially from the above.

It was found difficult to separate the cases completely cured from those in which the treatment resulted in a good functional result, and we have, therefore, grouped them together. Many were really "cured" and were able to do everything they had been accustomed to do before their illness. Most of these were among the younger patients and where the disease had not been of long duration. The majority—"good *functional results*"—are able to lead a useful and moderately *active* life. Where the hyperthyroidism has led to *organic* cardiac disease, the damage to the heart is, of course, unaffected by the treatment.

The number of cases in which the disease could be attributed to a definite *exciting cause* was comparatively small. In a large proportion, however, dental and alveolar sepsis were discovered and invariably treated. We regard a dental examination as most important and usually radiograph the teeth in the course of the systematic examination of the patient. Cases with a local sepsis of this kind are not likely to improve beyond a certain point under treatment until it has been dealt with.

The *sex incidence* shows that there were 260 females (86·6 per cent.) and 40 males (13·3 per cent.).

The *age incidence* was as follows:—

260 Females.

| Age | 0-10 | 10–20 | 20–30 | 30–40 | 40–50 | 50–60 | 60–70 |
|---|---|---|---|---|---|---|---|
| Cases | 1 | 11 | 57 | 78 | 75 | 28 | 7 |

40 Males.

| Age | 10–20 | 20–30 | 30–40 | 40–50 | 50–60 |
|---|---|---|---|---|---|
| Cases | 1 | 3 | 12 | 18 | 6 |

There were six instances of hyperthyroidism running in families, two or more in a household having developed the disease. In one instance three sisters out of seven developed hyperthyroidism; two died, and the third was the only one to come under treatment. She is now in perfect health.

### *Symptoms.*

Of the cardinal symptoms (goitre, exophthalmos, palpitation, and tremor) the *goitre* was by no means constant, and was present in not more than three-quarters of the cases. It is usually general and involves the isthmus. The degree of hyperthyroidism bears no relation to the enlargement of the gland. *Exophthalmos* is also a variable symptom. It was noted as being present in 203 cases (68 per cent.) in the series. Both eyes are usually affected, but occasionally only one is prominent. The degree of exophthalmos varies greatly from the least prominence of one or both eyes to the well-known protruding eyes characteristic of an advanced case. A one-sided exophthalmos occasionally persists after a case is otherwise "cured," but it usually subsides in the end. *Palpitation*, associated with tachycardia, is the most constant symptom of the disease. The average pulse-rate, taken with the patient sitting down when first coming under treatment, was about 120; it was occasionally so rapid as to be uncountable. The type of the pulse at the wrist is peculiar, exhibiting a slight "nervous" tremor or thrill that is quite characteristic. This feature clears up as the patient's general condition improves, even though the pulse-rate at the time of examination has not gone down to any appreciable extent. *Tremor* is practically always present and was looked for in the hands only. It may be either fine or coarse. The former may be so fine as to be hardly appreciable unless the fingers are observed alongside some steady object. A patient with the coarse variety of tremor may be unable to raise a full cup of tea without spilling it. Tremor is much increased by exertion or excitement.

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[1] Brit. Med. Jour., August 31st, 1912.
[2] Proc. Roy Soc. Med., 1921, vol. xiv.
[3] Ibid., 1920, xiii., 133–141.

*Nervousness* is a common, almost an invariable symptom, but is very variable in character; lack of confidence, and fear of traffic and of heights are often complained of, also irritability of a senseless type and lack of self-control. Tears are ready to flow without apparent cause, and the patient may suffer from a feeling of impending disaster. Mental instability is another feature, and from time to time border-line mental cases were noted; all but one of these recovered.

*Metabolism* is enormously increased, and the metabolic-rate test has been largely used in the U.S.A., and, to a less extent, in this country in estimating the severity of the disease and the effect of treatment. In our experience this test is inferior to the trained observation and judgment of an experienced physician.

*Loss of weight* in these cases is often very striking, It comes on gradually and may amount to 100 lb. The arrest of this loss of weight under treatment constitutes one of the most satisfactory signs of progress.

Hyperthyroidism begins insidiously, the patient feels " below par " and lacks energy, and a little later becomes conscious of the heart's action. The pulse-rate increases slowly. Then comes palpitation on exertion, and the pulse shows the characteristic nervous feature previously described. There is a diffuse apex beat and the left ventricle is enlarged. Examined radiologically, this enlargement is found to take place, in the first instance, backwards rather than outwards. It is therefore not apparent on physical examination. Under certain fixed radiographic conditions the normal measurement of the displacement of the shadow of the left ventricle is 14 mm. as a maximum when the X ray tube is moved 10 cm., but with enlargement a displacement of 25–30 mm. is common before there is evidence of any abnormality on clinical examination.

A few other points may be noted: Patients suffering from hyperthyroidism do not " catch cold," and an infection of this nature usually indicates that the treatment is beginning to tell. Neither do they feel the need of warm clothing in cold weather. Swelling of the ankles, not pitting on pressure, occurs with some frequency, and in a few instances this symptom alone has brought the patient under observation. Of other symptoms diarrhœa and loss of hair are the most frequent.

The association of *diabetes* with hyperthyroidism is more than a coincidence; we have had one case where two sisters had both hyperthyroidism and diabetes, and in about ten cases the diseases were coincident. Quite apart from diabetes, however, these patients very frequently suffer from abnormal thirstiness.

### *Method of Treatment.*

The X ray treatment of hyperthyroidism is no stereotyped and routine course. The radiologist takes full responsibility and must be prepared to adapt his methods to the individual needs of his patients. It is for him, and for him alone, to prescribe the dose of rays and the times of their administration. If he is to do this intelligently he must necessarily take a keen interest in the clinical picture that is changing before his eyes under the mysterious action of radiations that produce such definite results. He does not, however, undertake the treatment of the case except in so far as his own methods are concerned, the general treatment of the patient and the prescription of drugs being the province of the clinician in charge of the case.

Three types of radiation may be used: (1) radium; (2) deep X ray therapy with high voltage; and (3) ordinary X rays of medium wave length. Only the third method is described here, as the patients in the series under consideration were all treated in this way. After a routine examination, in which the salient points of the case are noted, the patient is treated lying down with the head turned to one side and a little raised. The rays are applied through a large oval localiser right down to the thyroid and including the whole of one side and the upper part of the superior mediastinum. The other side is then treated, the isthmus getting the overlapping dose from each side.

We use a filter of 3 mm. of aluminium and a layer of boiler felt between the localiser and the patient. The tube (Coolidge) is at a distance of 9 in. from the skin, and we use a 6–7 in. spark gap between points. We use 2 ma. running through the tube. The dose administered takes seven to ten minutes and is equal to one-third of an erythema dose on the skin. This can be given twice a week without danger, at any rate for a month.

At the end of two or three weeks we expect to find some improvement, and almost invariably do so. This may be manifested in a number of ways: (1) the patient feels better; (2) the pulse is slower, and, possibly, has lost its nervous character; (3) the irritability is not so marked. If we feel confident from any of these comparatively slight signs that the rays are beginning to act, the interval between the doses is increased to one week, and according to the patient's response to the treatment, we lengthen the intervals between the doses. As recovery progresses the intervals are extended to a fortnight, a month, three months, and finally six months, but no rule can be laid down, as it depends entirely on the patient's progress, and we often go back to more frequent doses if progress is not maintained or if the patient tends to slip back.

### *Results.*

The number of treatments necessary in each case is quite variable. The smallest number by which a patient was apparently cured was six. The average number is about 20, spread over a long period—it may be a year or more—but the patient is usually on the way to recovery after six to eight weeks. X ray treatment must be persisted with; the results are slow and progress is marked by " ups and downs " which recall the appearance of a typhoid temperature chart.

The first favourable sign is usually the loss of the nervousness with a gradually increasing brightness of outlook. This is accompanied by a return of energy and strength, and the patient is able to do a certain amount more. An atmosphere of optimism is thus engendered, and this is encouraged by the radiologist and is of the greatest importance in the treatment. The heart symptoms, like all the others, improve slowly, a fall in the pulse-rate being generally noticeable by the end of the fourth week, and there is a return of self-confidence for which the patient is very grateful. Slight retrogressions are common, and if the patient tries to do too much at one of these times a bad relapse may result. As a rule, however, these relapses are quickly overcome by increasing the frequency of the doses and by rest.

Gain in weight is a striking result of the treatment. The average gain where the patients were systematically weighed (80 cases) was 17 lb. Two cases, however, which were completely cured lost 3 lb. in weight. In some cases the gain in weight was sensational —e.g., a lady of 44 years, height 5 ft. 10 in., who was a living skeleton when she came under treatment and had to be carried in, weighed 61 lb. At the end of her course of treatment by X rays she was absolutely cured, the exophthalmos and goitre had disappeared, and she had gained in weight no less than 84 lb. Many other cases equally satisfactory but less striking could be cited. This increase of weight is sometimes so marked as to be distressing to the patient, but when we have seen such patients at a later date they are no longer worried on this account. If questioned, they will usually say that the weight gradually went down to normal as they resumed their usual activities.

Goitre and exophthalmos are two features of the disease which are very variable in their response to treatment, both often persisting long after the other symptoms have been relieved. One eye sometimes recovers before the other. In the end, however, these conditions tend to disappear, but quite a number of patients have gone back to full work with prominent eyes and neck, neither of which can be regarded as a criterion of progress.

Occasional treatments are given long after the patient is back at work and leading a normal life, the idea being to forestall any possible tendency to recurrence. Indeed, so convinced are patients of the good effect that X rays have on them that there is sometimes difficulty in getting them to accept their discharge.

In competent hands there are no risks. An X ray burn would almost certainly be due to ignorance or carelessness in administration. Persistence with X ray treatment before adequate filtration was practised resulted in the formation of telangiectases. In some five or six of the early cases these were very unsightly, the skin being largely replaced by thin scar tissue traversed by small vessels, although there had never been any question of an overdose producing a reaction. None of the cases that have come under treatment since 1910 have developed this trouble.

It is said that X ray treatment causes a fibrosis around the thyroid which interferes with its removal should the case come into the hands of the surgeon. This is, however, somewhat doubtful, as fibrosis is found in cases which have not undergone X ray treatment, or in which the treatment has not been sufficient to have had any effect on the thyroid.

Real recurrences are very rare. We have only had two or three and these have soon responded to treatment. Septic absorption from teeth, colon, or elsewhere and diabetes are the most likely factors causing tendency to relapse. Until this underlying condition is located and dealt with, recovery will be delayed. Abscesses about the roots of crowned teeth are responsible for many things.

When interpreting the effects of treatment one must remember how variable is the course of the disease. "Under similar treatment some cases improve rapidly, others fluctuate or lose ground, or die." A certain number of mild cases, moreover, recover completely without any treatment at all. It is, however, impossible not to be convinced that X ray treatment brings enormous relief to the great majority of those afflicted with this disease.

### *Summary.*

To recapitulate: We have in this method a means of restoring to a useful and moderately active life between 60 and 70 per cent. of patients incapacitated by hyperthyroidism. A further 20 or 30 per cent. will be greatly benefited in health. The cases considered in this paper are consecutive and unselected. Cases of the somwhat rare condition of acute toxic goitre seldom come under X ray treatment owing to transport difficulties. They are usually satisfactorily treated by radium. Under both radium and X ray treatment a fulminating type of acute hyperthyroidism has been noted, and has invariably been fatal. Two of the three deaths from hyperthyroidism in our series were of this type, the patient having made satisfactory progress up to a point, and suddenly developing acute symptoms and dying within a few days.

The method, though slow, is, in competent hands, pre-eminently safe. The results are permanent, and, so far as we are able to judge, at least as good as those of surgery. Collaboration, not rivalry, between physician and radiologist is the ideal to be aimed at, for each can do much for the patient afflicted with this disease.

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# DIABETES AS SEQUELA TO ACUTE PANCREATITIS.

(*From the Diabetic Clinic of the Ministry of Pensions.*)

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NOTWITHSTANDING the extensive destruction of the pancreas that may ensue upon infection, the presence of glycosuria, and onset of diabetes, is the exception rather than the rule. It would appear, therefore, that in the majority of such cases a sufficiency of functioning tissue remains to ensure a normal metabolism of sugar. The experiments of Minkowski demonstrated that the survival of a small portion of healthy pancreas would suffice for this purpose. Again, the post-mortem table has shown us that a diffuse destruction of glandular elements may be unattended with glycosuria; that diabetes is, in fact, an occasional accompaniment only of associated pancreatic disease. The latter, in its chronic variety, is most frequently secondary to infection from the gall-bladder, the efferent lymphatics from which are in direct anastomosis with the lymphatics about the head of the pancreas. Thus cholecystitis is not uncommonly associated with a pancreatitis in which the phenomenon of glycosuria is absent. Such inflammatory change is manifest in two forms, designated extra- and intralobular, according as the resulting sclerosis affects the extra-lobular increase of connective tissue, or is mainly disposed among the acini, in the latter case the islands of Langerhans and the internal secretion being early impaired. Whatever the factor which determines the distribution of the sclerotic change, it is certain that the intra-lobular variety is of relative rarity; that in the majority of cases of pancreatitis glycosuria is a significant and late phenomenon. Thus in those infrequent cases of pancreatic lithiasis, in which an intense sclerosis is developed, in congenital syphilitic infection, and in that lipomatous condition rarely observed in connexion with cancer of the head of the pancreas, the entire glandular parenchyma may be crushed out of existence, or replaced by fat, while Langerhans' islands remain intact. It is not surprising, therefore, that diabetes is only occasionally noted as a sequela of acute pancreatitis,[1] a condition in which great portions of the gland may be extruded as sequestra. With the immediate clinical manifestations and causative basis of the acute infection we are not here concerned. Suffice it to say that the process is most probably initiated by a retrojection of infected bile into the duct of Wirsung, causing an activation in situ of tryptic ferments, with ensuing autolysis and necrosis of the glandular elements.

Of several hundred cases of diabetes which in the past two years have been admitted to this clinic, two only have been directly attributable to a previous acute infection. They are deemed to be of sufficient interest and rarity to merit a record.

### *Clinical Records.*

CASE 1.—Male aged 30. Prior to attack had enjoyed good health; *no history of gall-stones or of biliary infection.* In the month of February, 1916, while on a route march in France, he suddenly collapsed with acute abdominal pain. Operation was performed and acute pancreatitis diagnosed. A drainage-tube was inserted and the abdomen closed. Subsequent to this, though voluminous, "greasy," and fatty stools were noted, no symptoms were revealed. Patient gained in weight until the end of 1922, when prodromal symptoms—viz., loss of flesh, thirst, bulimia and polyuria—made their appearance. Medical advice was sought, and sugar was detected in the urine. He was admitted, therefore, to Leicester Hospital, his fasting blood-sugar being then 0·12 and urine-sugar 3 per cent. By means of careful dieting symptoms were relieved; body-weight, however, progressively diminished.

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[1] Noceto: *Diabète Gras au cours d'une Pancréatite Aiguë Partielle*, Archives des Maladies de l'Appareil Digestif et de la Nutrition, *Février*, 1913.

On May 7th, 1925, patient came under our care. He was of healthy appearance and normal development. On admission blood and urine sugars were respectively 0·2 and 5·5 per cent. No acetone was present. The fat *content of stools was normal. Subsequent progress is* shown in table below.

| Date in May 1925 | CH. | P. | F. | Cals. | B.S. %. | U.S %. | Acet. | Ins. units. |
|---|---|---|---|---|---|---|---|---|
| 8th .. | 21 | 59 | 160 | 1760 | 0·09 | tr. | — | — |
| 15th .. | 50 | 60 | 146 | 1754 | 0·100 | — | tr. | — |
| 18th .. | 60 | 81 | 165 | 2049 | 0·160 | tr. | — | — |
| 20th .. | 60 | 81 | 165 | 2049 | 0·100 | tr. | — | 10 |
| 25th .. | 60 | 81 | 165 | 2049 | 0·100 | — | — | 10 |

From May 25th the caloric value of the diet was gradually increased until the patient was in receipt of 36 calories per kilogramme of body-weight. Pari passu the insulin dose was advanced to 30 units, distributed in two doses daily. Given prior to the morning and to the evening meal this quantum was found adequate to maintain the blood-sugar over the 24 hours period at a uniformly normal level. Chart 1 illustrates the effect upon the blood-sugar content of ingestion of 50 g. of glucose at a period when the fasting level had been reduced to the normal. As will be seen the curve indicates that defect of the storage mechanism characteristic of diabetes. Under treatment symptoms have disappeared. A trace of glycosuria is occasionally noted; the patient is otherwise, apparently, a normal and a fit man.

CHART 1.

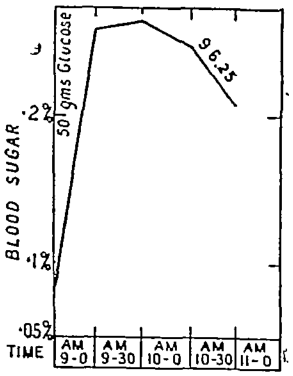
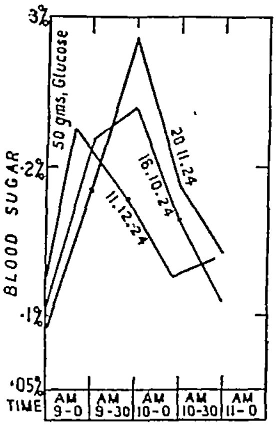


CHART 2.

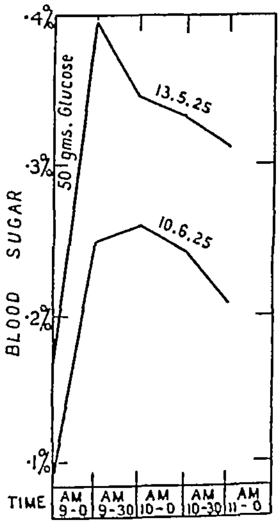


CASE 2.—Male aged 56. Patient of obese type (weight, 156 lb.; height, 5 ft. 4 in.). Family and personal history unimportant. Was admitted as an acute case to Middlesex Hospital in January, 1920. To the surgical registrar of that hospital we are indebted for the following particulars. "On admission, temperature 99° F.; pulse, 128. Abdomen distended and very tender on palpation, especially on the right side. Operation performed two days after admission. On incising the peritoneum an effusion of free blood was found in the peritoneal cavity. The appendix was normal, and the blood appeared to be coming from the retroperitoneal tissues of the posterior abdominal wall. A drainage-tube was inserted and the wound sutured. A specimen of urine was sent for examination. The diastatic power found—viz., 133 units—was very suggestive of pancreatic disease. Patient's temperature continued irregular—up to 102°, with decreasing amount of discharge from abdominal wound. On March 2nd a second examination was performed. An incision was made below the right costal margin and a large amount of sweet-smelling blood-stained debris and pus evacuated. A cavity was found in the region of the pancreas from which discharge appeared to be coming. A large drainage-tube was placed down to this cavity. On the 24th his temperature and pulse were normal. Patient was discharged to convalescent home on April 17th, 1920; abdominal wound was then practically healed. Diagnosis: Acute pancreatitis."

Subsequent to recovery from the operation the patient came under the observation of medical boards of the Ministry of Pensions. In August, 1922, in the course of a routine examination, a trace of sugar was found in the urine, together with albumin, and hyaline and granular casts. For September of the following year (1923) no sugar is recorded as being present; albumin, was, however, again noted. Urinary diastase was at this period normal. In August, 1924, the urine showed a glucose content of 0·6 per cent. and the fasting blood-sugar amounted to 0·18 per cent. On the latter account the patient was admitted to this clinic. At this time an unrestricted dietary was attended with glycosuria; on a slightly restricted diet blood-sugar variations were within normal limits. The urine contained a trace of albumin, no casts. Blood pressure was 180 systolic, 110 diastolic. No ketosis; diastatic index normal. The fat content of stools was normal. Sugar tolerance tests performed at intervals of several weeks showed graphs as given in Chart 2.

It will be noted that though the rise in blood-sugar following administration of glucose varies in successive curves, the curves themselves show a considerable conformity to type. Particularly in the test first undertaken was this of the "lag" species—a species in which the mechanism controlling storage "lags" behind that stimulative level of the blood-sugar—viz., 0·16 to 0·18 per cent.—at which storage is normally induced. The later curves, though less typical of "lag," were yet considered to be insufficiently characteristic to justify a diagnosis of diabetes; and as at this time no symptoms were apparent the patient was discharged. In view, however, of the anomalous nature of the graphs, and of the preceding history of acute pancreatitis, it was thought that an early degree of pancreatic inefficiency was signified; that the graphs were, in fact, indicative of the onset of diabetes. The patient was discharged, therefore, only for later observation. In January, 1925 (five years subsequent to acute infection), prodromal symptoms—viz., polyuria and polydipsia—were complained of; these speedily became more urgent until patient's readmission here on April 9th. Examination confirmed our previous views. At this date the sugar content of urine and fasting blood were respectively 4·0 and 0·16 per cent. The pre-insulin curve of tolerance and that derived in the course of treatment (Chart 3) indicate a marked degree of pancreatic inefficiency, and contrast in an interesting way with those obtained at an earlier period (Chart 2).

CHART 3.



Insulin therapy was initiated in the usual manner in small doses, commencing with 5 units twice daily, and the dietary was gradually increased to the caloric requirement of the patient, the insulin quantum being pari passu augmented. On discharge the patient was in receipt of 20 units, distributed in two doses daily; the blood-sugar throughout the 24 hours was uniformly normal; ketosis was absent; an intermittent trace only of glycosuria was observed. All symptoms of diabetes had ceased.

### *Conclusion.*

In concluding, we draw attention to the significant fact that recent radiograms, taken in the manner advocated by Carman[1]—viz., following (oral) administration of sodium tetrabromphenolphthalein—have given reason to suspect the presence of gall-stones in both of the above-detailed cases. Pancreatitis, acute and chronic, being most commonly secondary to infective process elsewhere, in view of a tendency—more pronounced since the advent of insulin—to find the ætiological basis of the individual case of diabetes in a pathological condition confined to the pancreas, we cannot too strongly emphasise the importance, both from the point of view of exact diagnosis and from that of treatment, of an X ray examination of the entire gastro-intestinal tract in every suspect case. Such a study will, it is hoped, form the subject of a later communication.

For permission to publish we express our indebtedness to the Director-General of Medical Services of the Ministry of Pensions.

# Clinical and Laboratory Notes.

## TWO UNUSUAL CASES OF
## CEREBRO-SPINAL FEVER.

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THE following two cases of cerebro-spinal fever are of interest, the first because of the insidious nature of the onset, the second because of the early age at which it occurred.

A. F., female, aged 16, was admitted to Plaistow Hospital on May 23rd, 1925, under a diagnosis of typhoid fever. Her illness had begun about a week previously with generalised pains and abdominal discomfort. For three days before admission she had a temperature in the neighbourhood of 102° F., with a pulse of 100, and had complained of slight headache.

*Condition on Admission.*—The patient was mentally clear, though inclined to be drowsy. The temperature was 102·6° and pulse 116. The tongue was dry and covered with a brownish fur, while sticky sordes coated the gums and back of the pharynx. There was generalised abdominal tenderness, but no distension or marked rigidity. The spleen was enlarged and palpable. There was no rigidity of the neck, no ocular paralysis or sign of other cranial nerve involvement. Kernig's sign was absent, and the knee-jerks and plantar reflexes were normal. A loud mitral systolic murmur was present, but the heart-beats were strong and regular. There was no history of diarrhœa, and an enema on the day of admission gave a constipated result.

During the night of May 23rd she was at times slightly delirious, and on the following day complained of pains in all the limbs, but particularly in the region of the thighs and hip-joints. These pains were exaggerated on movement. The abdomen was still tender and Kernig's sign still absent; the Widal reaction was negative and a blood film showed a moderate leucocytosis. Despite the absence of any actual swelling of the joints the patient's condition at this time rather suggested acute rheumatism. On the 25th all symptoms were exaggerated and blood appeared in the urine. There was definite stiffness of the neck, but no head retraction, and Kernig's sign was now present. Lumbar puncture gave 10 c.cm. of slightly turbid fluid, examination of which showed many polymorphonuclear cells and a few intracellular meningococci. 75 c.cm. of polyvalent antimeningococcal serum were given intrathecally, intravenously, and intramuscularly in equal portions, and this was repeated next day. A purpuric eruption now appeared on the left ankle and buttock, becoming very profuse on all parts of the body during the next three days. Though delirious at times, the patient remained, for the most part, mentally clear. There was profuse diarrhœa, and the hæmaturia persisted.

On the 29th she became unconscious and very noisy, and died at 11.50 P.M. The temperature, which at first ranged from 102° to 104°, fell to 97·4° on the morning of the 29th, rising again to 103° just before death.

*Post-mortem Findings.*—The surface of the brain was extremely congested and there were extravasations of blood into the subarachnoid space. Patches of yellow, purulent exudate were present in the sulci of the cortex, but no pus was found at the base of the brain. The spleen was much enlarged and very friable; the kidneys were studded with hæmorrhages, and numerous purpuric areas of varying size were found throughout the small intestine. The myocardium showed several purpuric spots, and some were present also on the mitral valve, one cusp of which was markedly thickened and cicatrised. Both lungs showed some basal congestion.

The main points of interest in this case are: 1. The insidious nature of the onset and late meningeal involvement, though eventually, at least, the infection was of a virulent type. 2. The absence of cranial nerve paralysis, with which may be correlated the post mortem findings. 3. The occurrence of hæmorrhages in the heart muscle and intestine, no reference to which can be found in the ordinary literature.

J. D. Rolleston[1] quotes four routes by which the meningococcus may be able to reach the meninges—namely, (1) by the olfactory nerves and the cribriform plate; (2) through the sphenoidal sinus and bone; (3) by the Eustachian tube and middle ear; (4) by the blood stream, producing a general septicæmia, of which the meningitis is merely one of the manifestations. The last-mentioned route appears to have been that taken by the organism in this case.

The second case is that of a baby, who, on Nov. 3rd, 1925, when 7 weeks old, developed symptoms of meningitis and was admitted to Plaistow Hospital nine days later. Head retraction was by then well marked, Kernig's sign was present, and lumbar puncture gave a turbid fluid containing meningococci. The child is now drifting into the chronic state, with persistent vomiting, emaciation, and pronounced opisthotonos.

To illustrate the rarity of cerebro-spinal fever during infancy, Root[2] was able to collect only seven cases occurring in the first two months of life.

I am indebted to Dr. D. MacIntyre, medical superintendent, for permission to publish these two cases.

## A CASE OF
## SYPHILIS OF THE THIRD GENERATION.

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SYPHILOLOGISTS seldom experience the rarity of a congenital syphilis case which has missed a generation. Therefore the following history may be both instructive and interesting. The patient in question underwent a searching examination *re* the past history relative to his case.

In February, 1917, a patient was sent me by his doctor, who had been his intimate friend for many years. The patient himself was a man of the highest integrity and was scientifically interested in his own history. He was 55 years of age and unmarried. Five years previously to my first seeing him he had some ulceration on the tip of his nose and also some ringed patches on the abdomen and thighs, which after a time disappeared, leaving superficial scarring; the nose also greatly improved. When he first consulted me he had some rather deep ulceration on the right side of the face, in front of, and slightly involving, the lobe of this ear, which had been gradually spreading for some three years in spite of various local treatments. He also had some areas of pigmentation on the forehead, but little or no general adenitis, and the reflexes were normal. The external genitalia were normal. I diagnosed the condition as syphilitic, at which his own doctor was astonished, regarding it, from what he knew of the patient, as quite impossible.

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[1] Carman, R. D.: Cholecystography in its Application to the Diagnosis of Cholecystic Disease, THE LANCET, 1925, ii., 67.

[1] Rolleston, J. D.: Acute Infectious Diseases, 1925.
[2] Root, J. H.: Amer. Jour. Dis. Children, 1921.

*History.*—The patient gave the following clear and definite history. He had never had coitus in his life, never having experienced the slightest desire for sexual connexion. His parents were first cousins, the fathers being brothers, one of whom, his paternal grandfather, who had led a dissipated life and was alcoholic, had died when under 40 from what was probably G.P.I. His own father died at 87 from senile changes, and his mother at 75 from stoppage of the bowels. Both were very healthy people. His maternal grandfather died at 70 from softening of the brain, and maternal grandmother, when about 70, from senile changes. The patient was the eldest of four children, and was born 18 months after the marriage of his parents; one infant was born jaundiced and died at 3 years of age from scarlet fever. His brother was an alcoholic, but his sister was quite healthy. He had an attack of typhoid fever at 21, and a nervous breakdown 20 years ago with so-called spinal irritation, but with the exception of a bicycle accident he has never suffered from any ailment.

The Wassermann reaction was strongly positive. I gave him a course of injections of hectine B, together with small doses of X rays to the ulceration. This was followed by a course of hectargyre B.

By the following June all the ulceration had healed and the Wassermann was negative. After this he took some mercurial pills for some months, and as far as I am aware he has had no return of his former symptoms.

The following points in the above history are of special interest. There appears to be but little doubt that the paternal grandfather was the originator of the disease. The parents of the patient were both very healthy, long-lived people, neither having ever shown any evidence of inherited or acquired disease. In cases of inherited syphilis it is generally assumed that the infection is conveyed by the mother to the fœtus. In the above case the infection I presume to have been conveyed by the germ inherited by the father to the ovum of the mother, and yet neither parent ever revealed any signs or symptoms of the contagion.

## A CASE OF
## PERICARDIAL EFFUSION OF TUBERCULOUS ORIGIN.

BY JOHN GRACIE, M.B., F.R.F.P.S. GLASG.,
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THE following case of pericarditis with effusion appears to be worthy of record on account of the abnormally large effusion into the pericardial sac, and also on account of the absence of certain of the recognised signs of a pericardial effusion.

W. D., aged 49 years, a stonemason, was admitted to hospital on August 13th, 1925, complaining of shortness of breath and extreme exhaustion. His illness dated from the beginning of July when he contracted a "chill" after exposure to cold. This was followed by weakness and breathlessness. He continued to work for a week, but on account of increasing weakness, breathlessness, and a feeling of exhaustion he had to give up work and take to bed. His condition became steadily worse until his admission. With the exception of "gastritis" two years ago he had always been in good health. He was the father of seven children, two of whom died, one from meningitis and the other from pneumonia.

*Condition on Admission.*—When admitted the patient was very cyanosed and in a state of extreme exhaustion. He could not lie down, and in bed he assumed the position of orthopnœa. He was restless and anxious. His temperature was 101·6° F., respirations 30, pulse-rate 96 per minute. There was some distension of the jugular veins, but no visible pulsation. There was no enlargement of the superficial lymphatic glands and no œdema. The chest was somewhat barrel-shaped. There was no localised bulging. The interspaces were not well marked and there was no visible pulsation over the precordium, epigastrium, or in the episternal notch. The apex impulse was not palpable. Almost the entire front of the chest was dull to percussion, dullness extending diagonally from the sternal borders at the second interspace to the mid-axillary line at the level of the fourth rib on each side, the dull area thus outlined being pyramidal in shape. On the right side dullness merged with liver dullness, while on the left side the gastric crescent was clearly defined. Posteriorly the percussion note was slightly hyper-resonant. There was no dull area. The respiratory murmur over the front of the chest was inaudible except at the apices, where it was broncho-vesicular. Posteriorly it was harsh and accompanied by high-pitched râles. There was no evidence of effusion or congestion at either base. The heart sounds could not be heard over any part of the chest. The pulse-rate was 96 per minute, feeble and irregular, the nature of the irregularity suggesting auricular fibrillation. The arteries were thickened. The tongue was moist and thickly coated. There was no dysphagia. The liver dullness extended to one and a half inches below the costal margin in the mid-clavicular line and the liver was palpable and tender. The spleen was not palpable. There was no ascites. The pupils were equal and reacted to light. There was no abnormality in the nervous or urinary system.

The physical signs pointed to a large effusion into the pericardial sac, but the condition of the patient made an examination by radioscopy impossible. A needle was introduced into the pericardial sac at the fourth left intercostal space two inches from the left sternal border, and seven ounces of sero-sanguineous fluid were withdrawn. There was considerable pain and distress during the withdrawal of the fluid, and the patient's condition did not warrant a further effort at drainage. The left border of dullness diminished about one inch, but the right border remained unchanged. The heart sounds could be heard very faintly. There was no pericardial friction. Paracentesis gave slight temporary relief, but the patient gradually became more distressed. The pulse became more feeble and latterly imperceptible. Cyanosis became more marked, a dusky petechial rash appeared over his back, and there was dullness posteriorly at the base of both lungs. He died 24 hours later.

*Post-mortem Examination.*—The pericardial sac filled a large part of the thoracic cavity. It contained over three pints of sero-sanguineous fluid and the visceral and parietal layers of the pericardium were covered with a thick fibrinous exudate. The heart was not enlarged. The glands around the bifurcation of the trachea and the roots of both lungs show silicosis and healed calcified tuberculosis, also recent caseous tuberculosis. There was fluid in both pleural cavities. The lungs were partially collapsed, and they showed evidence of old-standing tuberculosis and silicosis. The liver, spleen, and kidneys were enlarged, the result of chronic venous congestion. The appearances suggested that the pericarditis was of tuberculous origin.

### *Discussion.*

The physical signs of a pericardial effusion necessarily vary in accordance with the amount of fluid contained in the sac. Ordinarily it does not exceed 16 oz., though in cases reported by Corvisart it reached 30–40 oz. The abnormally large quantity of fluid in the above case—viz., 60 oz.—would account for departure from some of the recognised physical signs, notably: (1) The extension of dullness to the right mid-axillary line which was probably accounted for by the absence of adhesions between the pericardium and the anterior thoracic wall allowing the pericardium to expand equally in both directions. 2. Absence of Sibson's notch in the left border of dullness. 3. Areas of absolute and relative dullness were approximately equal, accounted for by the distended pericardial sac filling up the entire front of the thoracic cavity, the lungs being displaced to the back with the exception of a small portion of the apex of each lung. 4. Absence of dullness at the base of the left lung (Pins's sign). 5. No evidence of pressure on the œsophagus, trachea, or recurrent laryngeal nerve. On palpation of the heart, post mortem, before any fluid was withdrawn from the sac, it could be felt floating upwards, the position of the apex corresponding approximately with the third left intercostal space. Further, a large quantity of fluid could be felt anterior to the heart, which confirms the view that the heart is suspended in the liquid and that it does not float on the surface, as stated by other observers. This would explain the entire absence of visible or palpable pulsation over the precordium.

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NORTH WALES NURSING ASSOCIATION.—At the annual meeting of the North Wales Nursing Association, which was held at Bangor on March 5th, it was stated that there are now 98 district associations working under the scheme. In Anglesey there is a nurse to 1076 of the population; in Carnarvonshire one to every 2660; in Denbighshire one to every 2973; in Flintshire one to every 3090; and in Merionethshire one to every 2170. The new Government regulations for the training of midwives provide for only £350 from the education authorities and the Board of Education and £170 from the Ministry of Health, whereas formerly the corresponding contributions were £700 and £200 respectively. An appeal to the Ministry of Health to reconsider its grant is being made.

# Medical Societies.

## ROYAL SOCIETY OF MEDICINE.

### COMBINED SECTIONS OF SURGERY, MEDICINE, ELECTRO-THERAPEUTICS, AND THERAPEUTICS.

(*Continued from p 552*)

### TREATMENT OF EXOPHTHALMIC GOITRE.

THE discussion on the treatment of exophthalmic goitre was resumed on March 9th, Sir Lenthal Cheatle, President of the Section of Surgery, occupying the chair.

### *General Management and Indications.*

Prof. F. R. Fraser said that, the cause of the disease being unknown, no treatment directed at the cause was possible. Recent developments, however, had made it advisable to review the situation so as to improve the general management of cases. These developments were the reintroduction of the treatment by iodine, the recognition of thyroid disease as a cause of auricular fibrillation and heart failure, and improved skill in the surgery of the thyroid gland, and in the selection and preparation of patients for operation. He again insisted on a differentiation of the cases into groups, setting out their characteristics, and said that the differentiation between primary and secondary groups was of importance in regard to both treatment and prognosis. Adolescence, pregnancy, the puerperium, and the menopause appeared to be dangerous events in both forms, and might be associated with increased intoxication; while septic foci in tonsils, sinuses, &c., if overlooked and not dealt with, were frequently responsible for exacerbations and relapses.

For the best management of a case one must have a clear knowledge of the natural course of the disease, and social possibilities entered largely into success. Over a large series of cases treatment by X rays and treatment by lobectomy produced a general result differing but little from the course of control cases not subjected to these measures; but "subtotal thyroidectomy" had a beneficial effect in comparison. In 60 cases of all forms of Graves's disease which were under the care of the medical unit of St. Bartholomew's Hospital tonsillectomy was performed in 14 on account of gross sepsis, and in each case there was a lower level of intoxication after the operation.

At present there was no clear indication as to the value of any special diet in the disease. He had no experience of the treatment of the disease by X rays or by insulin. If treatment were carried out on the lines indicated most of the cases of Graves's disease made a satisfactory recovery and returned to normal conditions of life and efficiency. A number of cases had been unable to carry out the treatment, a main cause having been heavy domestic responsibilities and worry when absent from home. If at the end of six months of rest and general measures the pulse-rate remained above 100, or if auricular fibrillation or other cardiac trouble developed, operation should be considered. Of the 60 cases in the hospital during the last five years, of the primary form 18 received no surgery and 8 of these were now doing well, 3 were slowly improving, 2 were doing badly, 2 were dead, 2 had been lost sight of. Of 14 operated on 1 died immediately after; the other 13 were now satisfactorily doing their work. Of 23 cases of secondary Graves's disease 10 were treated on general lines and 5 were continuing satisfactorily, 1 was doing badly and had now developed auricular fibrillation, 1 was lost sight of, and 3 died before they could be brought into a state satisfactory for operation; 13 had had thyroidectomy operations, 1 had recently died in hospital when readmitted for a further thyroidectomy two years after lobectomy. The other 12 were doing well. Ten of 14 primary cases were operated upon because they had to return to work as soon as possible; of the secondary cases 8 were operated on because of cardiac disturbances, only 1 for economic reasons. He urged the continual coöperation of surgeon and physician in order to secure the maximum benefit.

Mr. T. P. Dunhill directed his attention to the following points: How cases were selected for operation, how operation could be rendered safe and effective, the death-rate, the end-results. He made it clear that he did not regard operation as the one and only treatment for every stage of the disease, though for some stages it was the main one. Of the 831 cases on whom he had operated for exophthalmic goitre he had analysed the histories of 170 consecutive cases. Sixty-eight of them had been ill over four years, 48 over six years, 37 over eight years, 32 over ten years Mental disease in these patients was not uncommon; 11 were approaching a stage when they could not be looked after in their own homes; it was advisable to be in touch with a mental specialist about these. Only 1 of the 11 had not improved, and she had been in an asylum before. Chloroform he regarded as an unsafe anæsthetic in these cases; the best was gas and oxygen with a little ether, given by the intratracheal method. When auricular fibrillation was present he thought local anæsthesia greatly preferable

### *X Ray Treatment.*

Dr R W. A. Salmond said he regarded X ray treatment, though valuable, as subsidiary to both medical and surgical treatment. The most favourable type for the application of the rays was that with the classical Graves's syndrome of moderate acuteness. The earlier in its stage the case was secured the easier it was to treat. In most of the cases so treated in his purview there had been marked improvement. There seemed to be no means of ascertaining beforehand how a given case would respond to the rays. The most obvious effect had been an improvement in the patient's general condition, a less "nervy" condition, a disappearance of palpitation and tremors, and a steady fall in the pulse-rate. Each case should have its appropriate dosage, no general line could be laid down, and it must never be forgotten that a very potent agent was being used, which was capable of doing great harm. Filtration through at least 3 mm. of aluminium should be carried out. A too prolonged treatment might lead to atrophy of the gland Worries and fretfulness were found to counteract the good effects wrought by treatment. There was no reason why irradiation should not be associated with medical treatment.

The Chairman said though Dr. Salmond had made out a good case for treatment of exophthalmic goitre by X rays he did not himself like operating on a case which had been subjected to the rays, as it rendered the operation more difficult; the gland seemed to be more adherent to surrounding structures than normal. Neither was he a great believer in the value of X rays in the treatment of the disease. In America the chief function of the physician was apparently to prepare the patients for operation. Some in this country considered operation for the condition was quite unnecessary. In these discussions finality was not likely to be reached, but it was only by such discussions that the profession could appreciate how much—and how little—it knew.

Prof. G. R Murray spoke of the great value of such an intensive study of cases as had been carried out by the medical unit at St. Bartholomew's Hospital. He reminded Fellows of the important clinical studies of a group of cases of the disease which were made some years ago by Dr. A. Maude when he was in practice at Westerham; his papers giving the results were a model of good work. Prof. Murray's own experience of these cases had been gained in hospital and in connexion with patients seen in practice. He did not agree with Barker, in America, that under any treatment cases would recover in two or three years; that had not been his own experience. He had found an enormous difference in the duration of the disease in different persons. He considered that the secondary form of Graves's disease was much less common than the primary form. In a series of 300 cases in 11 years 288 were primary, 12 secondary. But the division was not a sharp one, and while there appeared to be intermediate cases, some which at first seemed to be simple thyroid intoxication later became more marked and developed into full Graves's disease. It was true that the cause of the disease was not known, but he wished to stress the causal importance of emotional strain. In his 300 cases there was a history of sudden shock in 38, prolonged anxiety in 17, so that emotion played a definite part in 18 per cent. And he agreed as to the importance of sepsis, and how much more hopeful treatment was when cases were brought under treatment at an early stage. He particularly urged those in private practice to be on the look-out for the early indications, and to be less prone to say such cases were neurasthenics. The value of X rays could not be doubted, but it must always be remembered that the disease was one of long duration. The effects of iodine in the disease he regarded as no more than transitory; he did not care very much for it as a routine measure.

Dr. DOUGLAS WEBSTER spoke on the radiological treatment of the disease, remarking that radiologists saw a worse type of case than did general practitioners. Of 107 cases he had treated in this way 88 showed marked improvement. He complained that some recent works failed to show an up-to-date knowledge of the progress made by the science of irradiation and the results it was accomplishing.

The discussion was concluded on March 10th, when the chair was taken by Dr. HUGH THURSFIELD, President of the Section of Medicine.

### *Electrocardiograph Indications.*

Dr. JENNER HOSKIN based his contribution on an examination of 130 cases of primary and secondary Graves's disease, both clinically and electrocardiographically, during 18 months. Only ten of the patients were males, and the ages of the patients ranged from 13 to 60. Fifteen of the patients were treated medically, and nine had a serious condition of the myocardium. In 49 per cent. of the cases the myocardium was healthy, in 51 per cent. it showed definite damage. Of those with a healthy myocardium 56 per cent. were under 30 years of age, whereas of those who had a damaged myocardium only 28 per cent. were under 30 years. Thus it was evident that operation was conducted under more favourable circumstances in the earlier decades of life, and it seemed inadvisable to persist very long with medical treatment in cases which did not readily respond to it. The heart condition seemed to be dependent on the severity of the disease and its duration, and a moderately severe condition lasting a long time appeared to have a greater and more lasting effect than did a severe one of short duration. Tachycardia, causing a tumultuous activity of the heart, was followed by fatigue and dilatation, murmurs at the apex and the base, and a basic friction rub. The hearts were most damaged in the cases of secondary Graves's disease which had been long-lasting. Dr. Strickland Goodall had stated that in primary Graves's disease the blood pressure was low, but in *the majority of the speaker's cases* the pressure ranged between 130 and 160 mm. Secondary Graves's disease showed a relatively higher blood pressure than the primary. In primary grade cases the electrocardiogram curves were normal in direction and amplitude, whereas in the secondary disease the curves were altered in many cases, and the heart-beat rate was less than in the primary form. He agreed with Dr. McNee that the pulse-rate afforded a very fair criterion of the amount of thyroid activity. He considered that a systolic blood pressure of over 160 needed that the patient should have either preliminary rest in bed with primary ligation or a modified enucleation, dependent on the degree of intoxication. Auricular fibrillation occurring late in secondary grades of long duration was not, per se, any contra-indication of operative treatment, but it was advisable for ligation to be done first, as also when the basal metabolism rate remained at over +50 in spite of rest and the administration of iodine. Marked changes in the electrocardiogram showed a toxic state of the heart muscle; he then advised a few weeks in bed, or primary ligation. Even *after this ligation* much improvement occurred. He showed and demonstrated a number of electrocardiograms of goitrous cases.

### *Discussion.*

Mr. LIONEL NORBURY said he attached great importance to primary ligation in some severe cases of exophthalmic goitre which had marked cardiac changes. It certainly, in his view, made the subsequent operation much safer. He examined the arguments for and against the procedure, and quoted cases in which primary ligation had been of real benefit.

Dr. W. LANGDON BROWN suggested that Dr. Ryle should try both optimism and iodine when dealing with cases of exophthalmic goitre. He felt that there was a good deal of truth in the remark that this disease was largely a matter of "sex and sepsis"; when women had a septic focus and an emotional strain was added they were liable to break down and manifest this syndrome. He quoted two cases in which patients experienced a set-back on visiting days at the hospital, due to emotional stress. In the matter of sepsis, he had been impressed by the importance of tonsillar sepsis in the disease. To stabilise a patient's weight he frequently had recourse to insulin; also in cases of anorexia nervosa in which the loss of weight was pronounced. A pulse-rate well over 40 usually indicated that the basal metabolic rate was increased, though the converse was not always true.

Dr. J. W. MCNEE referred to a specimen, in University College museum, of a fœtus showing an enormous thyroid gland, very prominent eyes, and other features of exophthalmic goitre, from a mother who had the disease to a marked degree. One could get a warning of an impending crisis in this disease by keeping a watch on the pulse-rate, for a sudden increase of this was a danger signal. If such a patient was not taking iodine it should be given; if she was having it, by increasing the dosage the crisis would probably be averted. He asked how frequently, since the reintroduction of the iodine treatment, Mr. Dunhill had found it necessary to do two operations on the gland. He had the idea that one lobe and a good part of the other could be removed at one operation, and if so, that seemed desirable, especially as it was a difficulty to have to tell a patient she must undergo a further operation.

The CHAIRMAN referred to the recurrent goitrous symptoms seen in young women at times of lactation, and asked for further light as to the indications for the use of insulin in the disease. He also asked whether X rays had been applied after the first operation.

Dr. E. G. CALVERT was asked to deal with the insulin question. He said he used insulin in these cases because of the antagonistic action between the insulin and the thyroid secretion. Insulin controlled the hyperglycæmia; its use often meant removing the burden from the protein metabolism and placing it on to carbohydrate metabolism; in other words, taking the strain off the thyroid and placing it on the pancreas. He had averted a serious crisis with mania by giving insulin, though after the crisis was past the effect of the insulin did not seem so great. Then iodine was given. He had found that most cases of exophthalmic goitre had hyposecretion in the stomach, and insulin caused the gastric secretion to increase and the appetite was improved.

### *Replies.*

Prof. FRASER expressed his appreciation of Dr. Calvert's statement concerning insulin. He still hoped some dependable *differentiation* of types would be arrived at soon, as until that was done there could be no real comparison of notes, nor any material advance in differential treatment. He would welcome further electrocardiographic investigations in this disease, the prolongation of the P.R. interval in goitre seemed, according to Dr. Hoskin, to show intoxication of the heart muscle. He pointed out the influence of life's sex events in determining at least exacerbations in the disease.

Mr. DUNHILL also replied. He said a valuable feature in this discussion had been the way in which surgeons and physicians had recognised the need of each other's help in dealing with the disease. Even when seen early, the circumstances of some patients were such that they could not derive the full benefit from treatment. He did not consider that operation was the treatment at every stage of the disease, but only for cases which had not responded to other measures. If he saw a patient within three months of the onset of symptoms he would on no account operate on her then; he would recommend her for medical care, so that her sepsis could be dealt with and the factors at work in her case ascertained. Moreover, at any time within six months the condition of the patient might become worse, therefore operation would not yield the best results if done before six months had expired. He admitted that the primary ligation referred to and carried out by Mr. Norbury might supply all that was needed to turn an early case to a favourable issue. In answer to Dr. McNee's question, in 700 of his 800 cases he had done two operations. It was necessary to observe an interval of about 12 days between the first and the second operation, so as to see what was the actual improvement brought about by the first operation. In one case, that of a fireman on an engine, he was well and back at work after only one operation. Most people, however, required the second lobe to be operated upon. In severe cases of the secondary type the second operation should follow the first as soon as possible.

Dr. SALMOND, replying on the comments made as to treatment of the disease by irradiation, said he agreed with Prof. Murray that very large goitres did not do so well under X rays as did those of moderate size. But he did not agree that radium was more stimulating to the gland than X rays in acute cases; moreover, radium might be preferable because its application did not involve disturbing the patient, whereas for X ray applications removal from bed had to be carried out, and a further disadvantage was the noise made by the apparatus. Over-enthusiastic use of the rays might cause a condition of arthritis of a joint, probably due to the absence of thyroid secretion in the metabolism. He agreed with Dr. Webster that the techniques employed in administering X rays varied a good deal; and the association in the disease with a persistent thymus which Dr. Webster mentioned was not sufficiently recognised.

## SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A NUMBER of short communications were made to the meeting of this Section held on March 4th, with Dr. EARDLEY HOLLAND, Vice-President, in the chair.

Dr. HERBERT SPENCER read a note on

### *Carcinoma Adenomatodes Cervicis Uteri.*

He remarked on the rarity of the condition, saying that confusion had arisen through the use in some works of the terms "adenoma malignum" and "adenoma destruens" for adeno-carcinomatous cases, in which at least part of the lining epithelium was proliferated. "Adenoma malignum" was a bad term, since adenomata were essentially benign growths. He had only met with one cervical case. This occurred in a woman aged 49, who had had four normal labours and one miscarriage. Menstruation had been regular, though profuse, except for two occasions when travelling. There had been no coitus for some years. About four years before the illness she had begun to lose more at her periods and once bled for three months, another time having six weeks without loss and then a severe hæmorrhage. For two years she had had a watery discharge which had twice smelt offensive. A piece of her growth had been diagnosed as an innocent adenoma by Mr. Targett, of the Clinical Research Association. Dr. Spencer removed the uterus with the Pacquelin cautery. It measured 10·5 × 6 × 4 cm., and the body was normal; the cervix was enormously enlarged by a growth infiltrating both lips. Microscopically this growth was composed of tubules and spaces, some dilated and filled with secretion, lined throughout with a single layer of cubical or columnar epithelium. The stroma was infiltrated with small round cells. The patient had been perfectly well for 22 years since the operation. The cases described by Cullen were adeno-carcinomata, not carcinoma adenomatodes, in which the simple appearance and absence of proliferation of the epithelium provided the chief pathological and practical interest. It was essential to examine large areas before claiming that there was no epithelial proliferation.

Dr F. J. McCANN referred to a case described in his "Cancer of the Womb." He thought the term "malignant adenoma" a good one.

Mr. H. F. SYMONDS described a method of

### *Endoscopic Examination of the Uterus,*

with its indications. He said that Reuben's method of insufflation with carbon dioxide was unsatisfactory because the inflation was contra-indicated in acute and subacute inflammations of the adnexa and cases of purulent discharge. Moreover, gas was unnecessary, since the uterine walls were rigid enough not to collapse on the tube. He had therefore had constructed a three-way brass tube on the lines of Chevalier Jackson's bronchoscope. It was 28 cm. long, with a 2-volt light, run from a dry battery, at the distal end, which was bevelled at an angle of 45° and carefully rounded off. Two of the channels were for suction; one of them could be used for irrigation or to run in adrenalin solution if required. They were connected with a bottle in which a partial vacuum was maintained by an electrical suction apparatus, and this kept the field free of blood and mucus. A small swab on a special holder was used as an obturator and might be put in three or four times during the examination, if required, to clean the lamp. There were two models, one with a 9 cm. bore for general use, and the other with a 6 cm. bore for small or atrophic post-climacteric uteri. A glycerine tampon was placed against the cervix for two nights and the cervix dilated slowly under general anæsthesia to 9/12. Direct vision of the endometrium could then be obtained and a piece could easily be removed for microscopy.

Mr. C. LANE-ROBERTS described a case of

### *Pregnancy Complicated by Ureteric Calculus.*

The patient was a primipara aged 27. At the fourth month of pregnancy she had a slight attack of pyelitis. At 7½–8 months (July 25th) she had pain in the back, œdema of the ankles, legs and thighs, and diminution of urine. On July 26th she had nausea and headache and passed no urine. On the 28th she was admitted to hospital looking and feeling pretty well, but still with suppression of urine. On the 29th she was catheterised at 2 A.M. and one ounce was withdrawn. At 11 A.M. she was examined and X rayed, with no result. Her blood pressure was normal and her blood-urea 96 mg. per 100 c.cm. Cæsarean section was performed, as it was thought that there must be a fibrous stricture aggravated by the pressure of the gravid uterus. A 30 weeks child was delivered and survived 36 hours. The right kidney was one and a half times its normal size, and the ureter distended nearly down to the pelvic brim. The left kidney was very large but its ureter normal. No obstruction was found and the abdomen was closed. Six hours later, as there was still no urine, a cystoscopy was performed and the right ureteric catheter passed up 4-inches only, the left into the pelvis. A right pyelotomy produced a large quantity of urine from a large, pale kidney, and the blood-urea fell steadily from 112 to 60 three days later, but no urine was passed by the bladder until the seventh day. Thus the reflex anuria of the apparently normal left kidney had lasted 11 days, even after the relief of obstruction. Cystoscopy on the twenty-fourth day showed cystitis, both ureters working well. Six weeks later a third X ray showed a small triangular shadow just above the bladder. Subsequently the patient had a perinephritic abscess from which she recovered, and a laparotomy later revealed a calculus in the pelvic part of the right ureter. Recovery was uneventful.

Dr. G. **Strachan** read a short communication on

### *Vaginal Polypi in Infants*

with a report of two cases. The first case was that of a female aged 18 months, perfectly well but for occasional spots of blood on the clothing. A firm, non-ulcerated semi-pedunculated polypoid mass about the size of a raspberry was found growing from the anterior vaginal wall about half an inch above the meatus. The vaginal orifice was dilated to take the tip of the little finger. Case 2 was an infant aged 5 months, with no symptoms save a " lump " noticed by the mother. A firm smooth mass about the size of a cherry was attached by a fairly broad base to the same part of the vagina. Both cases made an uneventful recovery after removal of the growth, cauterisation, and packing. Both tumours were red and congested and had an intact layer of squamous epithelium of varying thickness with occasional finger-like projections between the papillæ of the stroma. The main mass was composed of loose embryonic fibrous tissue, fairly infiltrated with lymphocytes. The blood-vessels were plentiful and well formed. There was no appearance of malignancy. Mr. Christopher Martin had suggested that remains of the original vaginal septum might be the origin of these tumours, their site being also that of most vaginal fibromyomata. The condition appeared to be very rare.

Dr. **Gibbon FitzGibbon** remarked that he had met two cases but neither had such large polypi. He then read a paper on a revised conception of

### *Antepartum Accidental Hæmorrhage.*

He defined some of the points in the generally accepted views of accidental hæmorrhage which he found incompatible with his clinical observations. The division into revealed and concealed hæmorrhage did not group the cases in any way connected with the gravity of the symptoms or the origin of the hæmorrhage. He accepted the opinion that the condition was due to a toxæmia and considered this supported by his clinical observations, but the toxæmia was either not the same as that associated with eclampsia, or else it had some fundamental modifying character. He considered that it arose from renal insufficiency and was a complication that arose during pregnancy in a subject of chronic nephritis. The various treatments adopted and practised with the object of controlling active hæmorrhage had not justified themselves by their results, because the bleeding was never really active or rapid in the serious cases, since it was due to a slow extravasation of blood from the whole uterine interstitial tissues, while in those relatively rare cases primarily due to ablation of the placenta the hæmorrhage, although sharp for a time, rapidly ceased by the normal process of coagulation and closure of the maternal placental sinuses and never gave rise to systemic symptoms. Antepartum accidental hæmorrhage must be divided into two types—a simple type truly accidental and due to ablation of the placenta, and a serious type due to toxæmia and interstitial degeneration of the whole uterine tissue without damage to the muscular elements. This type was better described as hæmatoma of the uterine walls, or uterine apoplexy. The symptoms were due to a slow progressive loss of blood, and the acute symptoms developed when that loss of blood had exceeded the physiological limits of vasomotor compensation, or when the onset of active labour added a greater strain than the depleted system could support. This latter was the common termination and required restoration from the condition of collapse; it was then usually followed by a rapid spontaneous termination of the pregnancy by the natural forces. The treatment and results from treatment in two groups of cases treated in the Rotunda Hospital during consecutive periods of nine and six years respectively were compared, as well as the pathological conditions found associated with the complication at operations and autopsies and reported by other observers, the general characteristics being almost universally the same. Active treatment to control the hæmorrhage was never required, but rather the restoration of the collapsed circulation. This was best obtained by the most conservative methods, after which the pregnancy could be terminated slowly by induction of labour in those cases which did not terminate spontaneously as a result of the complication, and which were not due to a purely accidental hæmorrhage as distinct from the diseased condition due to a toxæmic degeneration of tissues. The very serious cases commonly considered only amenable to operative treatment, such as hysterectomy, were not capable of standing the additional strain of such an operation, while those that recovered after operation would have been all the more easily treated for the collapse and would then have been suitable for simpler methods of terminating the pregnancy, if it had not ended spontaneously.—A brief discussion followed and some questions were asked.

Dr. G. W. **Theobald** then made a plea for

### *Drastic Reforms in the Teaching and Practice of Midwifery.*

He commented on the statistics of maternal morbidity and mortality, and maintained that many of the operations of gynæcology were the result of bad midwifery. Money and effort had been spent on the control of midwives and the establishment of antenatal centres, but the improvement was small. The midwife was expected to know too much, the doctor was getting less experience in normal midwifery, and the clinics had made possible an enormous amount of meddlesome interference. He illustrated his thesis by a résumé of cases admitted to the Leeds Maternity Hospital where at least nine women died during 1925 as a result of bad midwifery. Universities and teaching authorities shared the responsibility for these results. Many doctors had admitted to him that they had had to learn what midwifery they knew at the expense of their patients. It was, he said impossible to learn midwifery under the present hospital system. He pleaded for three or four hospitals and schools of midwifery in England on the lines of the Rotunda in Dublin, with a well-trained resident to supervise every detail of routine, where students could learn practical conservative midwifery " by osmosis." It was surely reasonable to claim that no operation other than low forceps should be carried out in a private house. Midwives should be forbidden to make a vaginal examination; the required information was obtainable by abdominal or rectal examination. He had not been able to find a single case of fatal sepsis in a woman who had not been vaginally examined. The remarkably low maternal morbidity in the Leeds Maternity Hospital he ascribed to a minimum of interference, free use of 1/1000 biniodide of mercury, abolition of binders, free purgation, and the administration of 40 c.cm. of antistreptococcic serum to all contaminated patients. Out of 35 primiparæ delivered by " the Garden of Eden method "—i.e., without any attention whatever from the nurse, who stood at a distance from the bed—18 had no laceration of the perineum whatever. Of 80 primiparæ delivered by the " modified Garden of Eden method," wherein the nurse simply prevented the head from being " born with a flop," 63 had intact perineums. Nor should the fundus be touched during the third stage.

Dr. J. S. **Fairbairn** cordially agreed with Dr. Theobald. The public must be educated, as the great difficulty of the general practitioner was the pressure from friends of the patient.—Dr. **Strachan** emphasised the time difficulty; general practitioners undertook far too many cases. Midwifery was going to midwives because the doctors did not want it.—Lady **Barrett** agreed that high forceps outside an institution should be forbidden, and that students should be taught to abstain from interference with the head or with the *uterus post-partum and to use safe drugs* for the relief of pain. The supervision of the junior student by a really competent teacher was most important.

Dr. THEOBALD, in reply, emphasised the value of scopolamine at any period of labour; he had never known it cause fœtal distress.

## BRITISH PSYCHOLOGICAL SOCIETY.

### *The Definition and Diagnosis of Moral Imbecility.*

A JOINT meeting of the medical and educational sections of the British Psychological Society was held at the house of the Royal Society of Medicine on March 8th. Five opening papers had been published in the *British Journal of Medical Psychology* a few days previously, and their writers spoke on special points only, after which the meeting was open for discussion.

Dr. A. F. TREDGOLD said that the definition of moral imbecility was inserted in the Mental Deficiency Act because, when the Royal Commission sat 20 years ago, a number of medical men gave evidence of the existence of a class of people characterised by anti-social habits, whose mental deficiency was such that they could not be certified as feeble-minded. Moral imbecility was a rare condition, but it existed, and its definition described the group of people with considerable accuracy. Confusion had, however, arisen because of attempts to include in the category cases of psychoneurosis and mental disorder. The psychological basis of a moral imbecile had two main characteristics: (1) antisocial propensities more marked than usual; (2) the ordinary inhibitions—wisdom and moral sense—less marked than usual. There was no such thing as inheritance of qualities, but only of tendencies; the absence of any tendency towards a moral sense, shown by the fact that it never developed at all, was the special mark of a moral imbecile.

Dr. CYRIL BURT did not believe in the existence of a moral sense as usually defined; if a defect in potentiality was meant it would be more correct to describe it as a temperamental defect. Intelligence was inborn though not present at birth; moral sense was acquired by training and not inborn at all. He did not think the necessity of proving an early history of deficiency should be insisted on; the impossibility of fulfilling this requirement prevented the certification of undoubted mental defectives. The two definitions of the mentally deficient and the moral imbecile appeared to be identical in meaning, and he suggested that the latter should be abolished.

Dr. M. HAMBLIN SMITH denied the existence of a moral imbecile altogether; he had long desired to see such a person but had never done so. Al the alleged cases could either be certified as feeble-minded or belonged to the category of psychoses or mental conflict. He regarded the definition as not only superfluous but misleading.

Dr. W. REES THOMAS said that the term moral imbecile was a legal and not a medical one, and while it might not be possible to diagnose such a condition, it was the doctor's business to fit into the term the cases it was meant to cover. Of 101 cases sent to Rampton in the last five years certified as moral imbeciles, about half were obviously feeble-minded and could have been certified as such; the majority of the others were cases of neurosis, psychoneurosis, and the like, with definite symptoms of which dementia præcox was the commonest. He regarded as the most important test the question whether the patient had any insight into his own condition.

Dr. F. C. SHRUBSALL considered that there was a type of case which fitted into the definition from the medical point of view but not from the legal point of view, because they had sufficient wisdom either not to come within the law or not to be found out.

### *Discussion.*

Mrs. PINSENT (who had been a member of the Royal Commission) said that the definition had been inserted because it was felt that general practitioners would not certify people who might show grave moral delinquency unless some such definition was included.

Dr. H. CORNER emphasised the point that a moral imbecile had no proper idea of the consequences of his action. The condition had been well described by a patient who said that he did foresee consequences, but that they appeared "dim, distant, and easily surmountable."

Dr. J. A. HADFIELD was sorry that so much of the discussion had centred on definition and so little on diagnosis. It was hard to differentiate between moral imbecility and ordinary psychoneurosis in people who might have developed early hidden complexes which emerged at a future time, commonly at puberty.

Dr. TREDGOLD, in replying, said that those with administrative experience did not deny the existence of moral imbecility, though admitting its rarity, and they were mostly agreed that the definition made it possible to get under care and control a type of case not certifiable as feeble-minded. The necessity of proving deficiency "from birth or an early age" stood in the way of certification; an early age should be taken to mean short of that age at which an adequate degree of mental development for managing the affairs of life is present

## BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on March 4th, Mr. H. J. WALKER, the President, in the chair, when Mr F E. FEILDEN read a paper on

### *Pyelography and its Value in Diagnosis.*

Pyelography was, he said, the introduction into the renal pelvis of a solution opaque to X rays; subsequently a radiogram was taken. The interpretation of the picture required care and experience. It might not always be possible to diagnose the pathological condition, but with experience it could be stated confidently that a given pyelogram represented a normal or a pathological condition. Frequently pyelography was the only means of arriving at a correct diagnosis, especially in some cases of painless hæmaturia. Pyelography suggested that many cases of so-called essential hæmaturia were in reality cases of congenital hydronephrosis associated with hæmaturia. It obviated the necessity of waiting until the patient was bleeding in order to discover from which kidney the hæmorrhage was coming, and was also particularly useful in the diagnosis of hydronephrosis before there had been much destruction of renal tissue and before the onset of infection.

In nephroptosis, continued Mr. Feilden, pyelography demonstrated the presence or absence of associated kinking of the ureter. The absence of kinking of the ureter in these cases raised a doubt whether operative interference was desirable. Lateral X rays, pyelograms, and, in difficult cases, lateral pyelograms were of assistance in distinguishing between the possible causes of shadows in the kidney. A uric acid calculus in the kidney could be demonstrated by the fact that after the solution was removed from the renal pelvis the shadow was accentuated by the staining of the stone. Normally the right pelvis was slightly lower than the left; if the left pelvis was lower than the right there was some pathological reason for it. If either lay below the third lumbar vertebra it was abnormal. Where a pyelogram could not be done owing to obstruction to the entrance of the solution, the resulting ureterogram might be of value. A dilated ureter from ureteritis suggested an infection of the kidney; a small ureter from disuse suggested a neoplasm. In suspected renal tuberculosis, unassociated with gross changes in urine, pyelography, by revealing a pathological condition of the kidney, would indicate the appropriate line of treatment. In malignant disease of the kidney pyelography revealed some change in the renal pelvis in a large proportion of cases. An early tumour of the renal capsule would not, however, be seen, and in this case a radiogram, after perirenal infiltration with oxygen, would be of value as an aid to diagnosis. It was important, said Mr. Feilden, to beware of underestimating the importance of the symptoms, "pain in the back" and "frequency." Either might be the patient's only complaint, yet his kidney might be the seat of gross pathological change. In cases of abdominal pain of obscure origin a pyelogram might be of the greatest assistance.

### *Discussion.*

The PRESIDENT referred to the disastrous results recorded in the early days of pyelography.—Mr. FEILDEN said that these results were due to inexperience and the use of silver salts, which were very irritating in the pelvis and calyces and produced focal necrosis.—Mr. J. R. H. TURTON asked whether a double pyelogram, without waiting a period of three weeks, was a safe procedure. It was most important not to mistake a calyx that had been cut across for a calculus.—Mr. FEILDEN said that to perform a bilateral pyelography was a perfectly safe procedure, if it was necessary to do it; it was especially helpful in differentiating between an early hydronephrosis and a normal but large renal pelvis. With experience a calyx (cut transversely) would not be mistaken for a calculus.—Mr. J. GRIFFITH referred to a case of hæmaturia in which the diagnosis could not be established until a pyelogram was done. This definitely showed a stricture at the junction of the pelvis and ureter and an open operation gave satisfactory results.—Dr. ST.G. B. D. GRAY asked the cause of the pain sometimes following pyelography.—Mr. FEILDEN said that it was very unusual for patients to complain of pain. Usually it was due to faulty technique. If the fluid was not removed from the pelvis spasm might be set up in the ureter. If there had been undue damage to the mucous membrane of the ureter the patient might have ureteric colic caused by blood-clot.—Mr. M. FITZMAURICE-KELLY inquired what solution was used, to which Mr. FEILDEN replied that he always used 15 per cent. sodium iodide as it gave an excellent shadow and was not irritating to any part of the urinary tract. He drew attention to the danger of doing pyelography in a case where a calculus was lodged in the pelvis at the junction of the ureter. It was necessary to make sure that the solution could be removed from the pelvis. Sometimes in these cases the calculus acted as a ball valve, that is to say, the solution could be introduced but not removed.

Following this discussion, Dr. NEVILLE COX showed a case of artificial pneumothorax illustrating the coin sound, and Dr. J. H. T. DAVIES showed cultures of different ringworm fungi.

## NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held on March 4th Mr. H. BELL TAWSE, the President, took the chair, and Dr. F. J. POYNTON (London) discussed

### *Some Abdominal Disorders in Childhood.*

Commenting on the longer intervals between feeds now in vogue for infants, he asked whether the fragile (though sound) child was not made over-hungry, with the result that it gulped its feeds and suffered from spasm and flatulence. In his experience this was what happened with delicate and ailing infants, though not with strong ones. Turning to the various kinds of food, Dr. Poynton dwelt upon the use of protein milk and foods not containing milk, speaking of their value in the difficult stage of acute gastro-enteritis and in chronic diarrhœa, when return to normal feeding had to be started. Giving his experience of hypertrophic stenosis of the pylorus, he described a series of 80 cases of his own, in which it was shown that a combination of prompt surgery, skilled nursing, and dieting had reduced the mortality from 70 to 6 per cent. He emphasised the importance of feeling the tumour. Discussing the dieting of cœliac disease, Dr. Poynton expressed the opinion that in some cases not only was fat not digested, but all the food elements were badly assimilated, and in addition the amount of food had to be much restricted.

*Acetonæmia was then considered*, and the two prominent features of the condition were illustrated —the nervous by examples of tram and train sickness, night terrors, and other evidences of nervous instability; the alimentary by the rare but clear-cut cases in which acetonæmia is diagnosed as the primary illness, but the actual cause is found to be volvulus of the small intestine. In classical cases of cyclic vomiting acetonuria might precede the vomiting, though in his experience this was exceptional. The evidence, he thought, pointed to some pre-acetone body as the essential poison. He concluded by showing drawings and radiograms of chronic intussusception.

The PRESIDENT, Dr. WILKIE SCOTT, Dr. J. A. BRIGGS, Dr. F. H. JACOB, Dr. R. G. HOGARTH, Dr. LANE, Dr. B. R. TRUMAN, Dr. C. H. ALLEN, Dr. W. T. ROWE, Dr. F. CROOKS, Dr. D. HUNTER, and Dr. JESSIE MORTON took part in the discussion.

## LIVERPOOL MEDICAL INSTITUTION.

AT a pathological meeting held on Feb. 25th Dr. J. C. M. GIVEN, the President, took the chair, and Dr. HOWELL EVANS read a paper on

### *Recent Advances in Knowledge of the Blood Platelets,*

with special reference to hæmorrhagic diseases and pathological thrombosis. Discussing the origin and specificity of the platelets, he mentioned especially the experimental work of Ledingham, Bedson, and Robertson, which, he said, afforded final proof that the platelets are separate blood elements. He then described the morphology of the platelets and a simple method of enumeration. Apart from their known function in connexion with blood coagulation, their importance in preserving capillary tone was important, capillary leaking and increased bleeding time being associated with deficiency. When the platelet count was very high, on the other hand, the capillaries seemed to be tightened up, and bleeding time was much diminished. Dr. Evans enumerated the phenomena associated with thrombocytopenia or platelet deficiency as follows: (1) slightly delayed coagulation time; (2) prolonged bleeding time; (3) failure of clot retraction; (4) diminished capillary resistance; (5) spontaneous capillary hæmorrhage. He showed that in a series of ten cases of primary and secondary purpura, with low platelet counts, the coagulation time, though usually stated to be normal, was in reality moderately delayed. The delay did not, however, approach the delay seen in hæmophilia, where the platelets were normal in numbers, but qualitatively abnormal. After classifying the causes of thrombocytopenia and discussing the primary disease, idiopathic purpura hæmorrhagica, Dr. Evans summarised the reported results of splenectomy for this condition and described two recent Liverpool cases in detail. Turning to conditions in which there was a rise in the platelet count, he pointed out that in certain of these conditions—namely, the convalescent period after infections such as typhoid and pneumonia, chlorosis, and certain forms of splenic anæmia—spontaneous thrombosis frequently occurred. In a series of six cases after splenectomy he had observed a definite shortening of coagulation time associated with high platelet counts. In one of these cases, a splenic anæmia of the Banti type, the platelet count persisted after splenectomy at a level of about 1,500,000 until the thirtieth day, when the patient died from mesenteric thrombosis. Similar fatalities after splenectomy in splenic anæmia associated with persistently high platelet counts had also been reported by Rosenthal. These facts showed a definite correlation between high platelet levels, shortened coagulation time, and clinical thrombosis, and emphasised the need for studying the platelet factor in its relation to all cases of pathological thrombosis.

# Reviews and Notices of Books.

## THORACIC SURGERY.

By HOWARD LILIENTHAL, M.D., F.A.C.S., Professor of Clinical Surgery, Cornell University. London and Philadelphia: W. B. Saunders Company. 1925. In two volumes. Pp. 1204. £4 10s.

IN no branch of surgery have greater advances been made in recent years than in the surgery of the thorax, and for those who have not followed its development these volumes will contain many surprises. The principles of ordinary surgery, which lead to certain victory in others parts of the body, may here lead to failure, since the conditions of success are entirely different. This treatise furnishes the substantial scientific foundations upon which the author and his colleagues have built up their unrivalled clinical experience. Prof. Graham contributes an important article on the physiology of the thorax, wherein he points out the differences between the conditions in thoracic and in abdominal surgery. He discusses at length the results of pneumothorax and the means by which damage to the mediastinum may be avoided; also the influence of a pneumothorax upon the opposite lung, the mechanism of compensation as to aeration and to circulation, and its effects, especially as regards exudation, both upon the compressed lung and upon the pleura. These considerations are at the root of modern lung surgery, and every worker will be grateful for such a clear account of a difficult subject. Roentgenology is treated by Jaches in an article remarkable for the excellence of the photographs of actual cases which illustrate it. These give a clear idea of what should be looked for in a good X ray, and indicate the important part played by this method of examination in thoracic work. An equally valuable article deals with anæsthesia and shows the elaborate precautions which must be taken, and the special knowledge and skill which are required, if success is to be achieved.

In the main section of the work Prof. Lilienthal deals lucidly with a vast number of conditions. He gives considerable space to the discussion of subjects which have not yet emerged from the experimental stage, such as the surgery of the valves of the heart, but he wisely devotes most of his book to the really practical problems which surgeons have to face. From a series of informative articles it is invidious to select any for special praise, but those on empyema, on suppuration in the lung, and on tuberculosis are outstanding. The section on empyema disposes once for all of the old-fashioned notion that empyema can be adequately dealt with by the house physician, whilst that on tuberculosis opens up a new field whose extent and possibilities cannot be foretold.

Without pretending to the encyclopædic proportions of Sauerbruch's great treatise, these volumes succeed in presenting a convincing account of the subject in an accessible and attractive form.

## FRACTURES IN GENERAL PRACTICE.

*Die Behandlung der Knochenbrüche durch den praktischen Arzt.* Von Geh. Hof. Prof. Dr. FRITZ LANGE. München: J. F. Lehmann. 1926. With 81 figures. Pp. 124. M 3 50.

PROF. LANGE, in his preface, says that his book is not intended for orthopædic surgeons. His aim is to put before the general practitioner the methods of after-treatment employed in orthopædic hospitals after osteotomies which are sometimes multiple, leaving the limb a mere chain of bones, a proceeding first carried out by the late Sir William Macewen. Prof. Lange gives reasons for confining his instruction to treatment by means of extension and gypsum and in some cases splints. He much prefers the zinc-glue bandage to other adhesive materials for the application of extension.

All the typical fractures are considered in systematic manner, and the method of treatment is described which the author finds best for each. In general he relies greatly upon a combination of end-traction with lateral corrective pressure by pads attached to, but not under, a plaster-of-Paris splint, which latter serves as a fixed point and affords counter-pressure. These principles he applies alike in fractures of the neck of the femur and in those of the ankle or the upper extremity. His advice as to the treatment of fracture of the neck of the femur in old people appears to be sound and is the outcome of great experience, but we can hardly suppose that he expects the general practitioner, for whom his advice is ostensibly intended, to carry out the bone-grafting or pegging operations which he describes for ununited fractures in this region. The author's sole reference to the Thomas splint, which he admits played so great a part in reducing the mortality from gunshot fracture of the femur among the British in the late war, is to be found in a paragraph in which he gives the entire credit for its introduction and for the consequently enormously diminished mortality to the Americans, entirely ignoring the work of all British surgeons. It is hardly necessary to remark that the improvement was effected before the American forces landed in France Naturally, perhaps, he prefers for such cases his own pattern of field splint, of which he gives an illustration and a full description. The results with this were no doubt excellent, but it lacks the simplicity and portability of the Thomas knee splint.

This little book is well printed and the figures are clear

## MODERN MEDICINE.

Third edition. By the late Sir WILLIAM OSLER. Re-edited by THOMAS MCCRAE, M.D., F.R.C.P. Lond., Professor of Medicine in the Jefferson Medical College, Philadelphia; assisted by ELMER H. FUNK, M.D. Vol. II. London: Henry Kimpton. 1926. Pp. 891. Set of six volumes, £13 12s.

AN extended and comprehensive work on medicine is in these days not an academic luxury to the occasional reader, but a bare necessity to every practitioner who attempts to base his work on current knowledge, and must be constantly kept up to date. In this way it is possible for him, on the one hand, to bring his practice up to the highest modern level, and on the other, to keep clear of those innovations which, after their little day, are found wanting in all but imagination

Twenty-eight authoritative physicians have contributed to this volume. Sir William Osler's weighty article on Syphilis is typical, in its lucidity and method, of his attractive writing, Dr J. W. Churchman assisting in the section, which has been revised by Dr. L. A. Conner. Particular attention is paid to the diagnosis in the febrile stage and to the mucous and cutaneous lesions. Dr. F. J. Poynton has been most successful in treating rheumatic fever in a similar fashion—i.e., as a national disease requiring organised treatment—and has summarised the methods of prophylaxis of the heart disease of childhood on the American pattern. It is interesting to note that the section still stands in the part of the volume devoted to diseases of unknown or doubtful ætiology. In this part also is an excellent article, well illustrated, on Small pox, by Dr. E J. Beardsley; the historical side of this subject as well as that of Vaccination (by Dr. G. Dock) is dealt with fully; the sections on Measles and other Exanthems are written by Dr. John Ruhräh. Dr. Thomas McCrae, who re-edits the book, contributes a section on Typhus Fever, in which he emphasises the occurrence of mild and often unrecognised forms of the disease in sporadic form. Dengue is dealt with by Dr. T. G. Coleman and Rabies by Dr. M. P. Ravenel, the human and canine forms of the last-named disease are well described, and the effects and method of the Pasteur immunisation summarised.

The second part of the volume is concerned with the Protozoan Infections. Dr. R. P. Strong, writing on

Amœbic Dysentery, devotes much space to classification of different amœbæ occurring in man and describes inoculation experiments; the pathology is well illustrated, and treatment by emetine and its variants described in careful detail. Malarial Fevers are exhaustively dealt with by Dr. Charles Craig, and his methods of General and Personal Prophylaxis should be known by all practitioners in temperate climates. Dr. J. W. Stephens, writing on Blackwater Fever, states that statistics give a definite verdict against the use of quinine therapy in this condition, of which the ætiology is still obscure. Sir David Bruce and Dr. G. Low combine in the section on Trypanosomiasis, in which we learn of the improving prognosis in this very fatal disease under modern methods of treatment. The Leishmaniases are described by Dr. B. C. Crowell, with illustrations of the development of the Leishman-Donovan bodies.

In Part III. the Spirochætal Infections are discussed. The article on Syphilis has already been referred to. Dr. Conner writes on Yaws, Dr. John Todd on Relapsing Fever, and Dr. McCrae has revised the article by the late Dr. James Carroll on Yellow Fever. Finally, Dr. E. Funk contributes a chapter on Spirochætal Jaundice and Rat-bite Fever. Part IV. is devoted to the Diseases caused by Animal Parasites, a section written by Dr. C. W. Stiles and prefaced by a useful general discussion and a classification of the parasites and their nomenclature. Part V., by Dr. Funk, deals with diseases due to physical agents. Chemical and organic poisons are the subject of Part VI., to which Dr. Norman Gwyn contributes two chapters; in an important section on Lead he describes the occupational incidence of chronic poisoning and the regulations in force to prevent it. The danger of a high calcium value in the diet is shown to be a storage of lead in the bones, which an upset of metabolism may cause to be liberated with disastrous results at a later date. The chapter on Alcohol, Morphine, and other Poisons, by Dr. Alexander Lambert, is full of interest and will be found an excellent guide to anyone having a case of alcoholic or other poisoning to deal with. The psychological cause of alcoholism in general is emphasised, and the consequent importance of dealing with the particular psychosis in a given case is pointed out. The treatment by belladonna of both morphinism and alcoholism is recommended and described in detail. A chapter on Food Poisoning is contributed by Dr. E. C. Dickson. Deficiency Disease forms the subject of the last part of the volume, in which chapters on Pellagra (Dr. E. J. Wood), Beri-beri (Dr. W. E. Musgrave and Dr. Crowell), Scurvy (Dr. R. Hutchison), and Rickets (Dr. G. Still) are included.

Altogether this volume contains many wise and valuable articles, and the appearance of the next will be anticipated with interest.

### PEPTONE IN BRONCHIAL ASTHMA.

*The Treatment of Bronchial Asthma by Intravenous Injections of Peptone.* By P. BOOT, M.D. Amsterdam. Amsterdam: H. J. Paris. 1925. Pp. 135. Fl.3.25.

Dr. Boot observes a series of cases of patients suffering from bronchial asthma in the clinics of the Binnengasthuis in Amsterdam. Of the 20 patients described, 11 more or less improved under the injection of peptone. In four cases high doses have shown improvement, whereas small quantities have failed. In one case there was hypersensibility for peptone. In one case peptone did not have any success, but tuberculin caused improvement. In the rest of the cases no result was obtained, except in one case where an auto-vaccine benefited. The author comes to the conclusion that the peptone suppresses the asthma and states his agreement with Dr. Auld[1] that the intervals of the recurrence of the attacks become less frequent after the peptone therapy. In the 20 cases which Dr. Boot describes, the method has generally been as follows. He starts with 5 per cent. of Armour's Peptone No. 2, beginning with ½ c.cm. and going up to 3 to 4 c.cm. In each case the blood was examined and skin reaction done. Although elaborate tables have been prepared and bacteriological methods and vaccine therapy are described, the clinical aspect should have been more elaborately dealt with for the treatment to be of use to the general practitioner. The reader, although finding interesting and well worked-out points, still obtains very little evidence of successful results. But the careful investigation displayed should be of help.

### THE MUSCULAR SYSTEM.

Second edition. By HAROLD BURROWS, C.B.E., M.B., F.R.C.S. London: The Scientific Press. 1926. Pp. 184. 1*s.* 6*d.*

THIS little book gives an excellent account of the various muscles of the body, grouped according to their actions. It is plainly intended for practical use by the clinician, and in this edition a useful chapter has been added dealing with the localisation of nerve lesions by means of muscle tests. The volume includes many useful illustrations, and is an example of wonderful value for price. We commend it to the notice of art students.

### ANNALS OF MEDICAL HISTORY.

December, 1925. New York: Paul B. Hoeber. Pp. 319–445 and Index. $2.50.

THE contents of this number, which completes the 1925 volume, range in point of time from Gilles de Corbeil of the twelfth century to Mark Twain of the nineteenth. Dr. E. E. Hume contributes an interesting paper upon Pettenkofer and his theory of the ætiology of cholera and other intestinal diseases, a theory now known to be erroneous, but even the mistakes of great minds are instructive. Pettenkofer, of course, won his fame as a chemist and physiologist and not as a pathologist. Dr. R. T. Williamson writes upon Corrigan and his career. Corrigan was one of the greatest of the many great Irish physicians who flourished during the first half of the nineteenth century and his name is known to every medical student by the expression "Corrigan's water-hammer pulse," indicative of aortic regurgitation, a condition the extreme importance of which he was at least the first to recognise, if not the first to describe, for that honour belongs to Hodgkin. The article is given additional value by an admirable photographic reproduction of the portrait of Corrigan in the Royal College of Physicians in Dublin. Dr. Stephen D'Irsay takes for his subject the life and works of that too little known but singularly interesting leech, Gilles de Corbeil, 1180–1223, physician to Philip Augustus. This is a very good paper with a copious bibliography. Here and there Dr. D'Irsay is obscure—for instance, in the following sentence: "The works of Gilles de Corbeil were all clad in poetic form. That form was the Leonine verse; pure hexameters interspersed with distichs." It is true that Gilles did use Leonine verses occasionally, more especially in the Hierapigra—e.g., Hierapigra VIII., vv. 63–68—but they are by no means the rule, even in that poem; in the other poems they are rare, and why the Leonine verse should be described as "pure hexameters interspersed with distichs" we cannot understand.

Dr. F. R. Menne writes about Rokitansky and his admirable work in pathology, and Dr. Aitchison Robertson has gathered together various delightful extracts from old writers for and against the Powder of Sympathy. Mrs. Taylor contributes the final portion of her most interesting reminiscences of her father, Crawford Long; and Dr. L. J. Bragman discourses upon the medical wisdom of Mark Twain as shown in his writings. The group of original papers ends worthily with a charming little poem by Theodor Storm, being an address to an ophthalmic surgeon from his grateful patients, here recorded by Dr. F. H. Garrison.

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[1] Brit. Med. Jour., May 5th, 1917.

In Pulm , 1926.

NCE.

HORLICK'S MA of Health,
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by BURDETT, though modified in different directions by altering circumstances from that originally devised for the Metropolitan Hospital Sunday Fund, was subsequently elaborated for use by King Edward's Fund, and has now developed into a revised and uniform system, such as is held by the Voluntary Hospitals Commission as essential to accurate statements, whether general or relative. Further, the annual reports issued by the joint council of the British Red Cross and Order of St. John, edited first by the late Sir NAPIER BURNETT and subsequently by Dr KAY MENZIES, provide invaluable statistics summarising the situation in some 600 hospitals from year to year, and in these reports the totals emerge with their significant information, more than which can hardly be expected. Further, we note in Mr. BROCK's paper a passage commending the efforts of the local hospitals committee at Manchester, where hospital statistics are more complete than in any other city outside London, and we echo his hope that Manchester's example will be followed in other great cities. It is clear from all this that need for financial order in these great charities is now being widely appreciated.

The following vitally important questions are set out by Mr BROCK as requiring answers, if hospital statistics are to be of proper use to the community in general: (1) Is the public doing its duty to the hospitals? (2) Are the hospitals solvent judged by ordinary business standards? (3) If they are not solvent, in what directions can expenditure be reduced or income increased?' It will be seen that the fundamental assumption is made that the public has a duty to the hospitals, and we need not recapitulate the grounds on which it is made. But the running of a voluntary hospital must to-day be seen by all to be a business proposition, for the neglect of curable sickness results in terrible waste of man-power and money. At the same time the hospital provides a centre for the promotion of medical research and for the education of medical men, both of which activities can be supported on purely business grounds, for if it did not fall naturally to the hospitals to make such provisions the community would have to be taxed heavily in order to obtain them elsehow. If the second
question cannot be answered in the affirmative the
rst must be answered in the negative, for the public
not doing its duty if the hospitals remain insolvent.
his brings us to the third question how, in case the
spitals are not solvent, can they be made so?
duction of expenditure, or increase of income, or
th, must cover any possible reply which leaves
ation out of question. The fact that the administra-
of all the hospitals in Manchester has resulted in a
per bed at the various institutions which compares
urably with the cost at similar hospitals elsewhere,
s that possibilities of economy lie in sound
isation and in intelligent methods of regrouping;
who have studied the question at large will agree
Mr. BROCK's view that we must expect the
l solvency in the voluntary hospitals to come
from increase of income than from diminution
nditure. And here the outlook is fair. The
ls are essentially voluntary and, therefore,
s' payments cannot be indefinitely increased,
rkmen's contributions, especially in the big
al centres of the North, now represent a
tial and assured source of income; and while,
extent, these contributions fall under the
y of patients' payments, it is only in a modified
at they can be so regarded. The true view of
ayments would hold them as mass subscriptions;
ro given not with the idea of the individual
of a patient, but with the intent to support

a great organisation which can only discharge its beneficent responsibilities if it is supplied with the material means. The appeal for workmen's contributions differs in no respect from the appeal to individual donors; it is founded on exactly the same principles, and as such is appreciated by the workman and has met with steady support.

Annual subscriptions to voluntary hospitals come in the main from the middle classes, directly as well as indirectly through the great Funds. This is a point that should be remembered in connexion with the fact that these are the classes who, in existing circumstances, derive the least direct benefit from the institutions. But, handsome as their support is, there is no doubt it would be substantially increased if organisations for securing subscriptions were more thorough. Individual charities canvass vigorously, with the result that institutions do not always receive endowments proportional to their deserts; but at best this way of wringing money out of the public is costly and capricious, and it is not surprising that Mr. Brock should say that the money obtained does not represent in some cases what might fairly be expected from a particular community. He brings forward the example of Leicester where the collection of hospital subscriptions is conducted on plan. At Leicester practically all occupiers of houses above a certain rateable value are visited and asked for at least a minimum subscription, and the inhabitants can hardly escape from the obligation to assist the Royal Infirmary and other institutions. But they enjoy in return immunity from an endless series of competing appeals and the satisfaction of knowing that contributions are going in the right direction. There is no doubt that in a similar way much money could be regularly obtained at other centres, but the question of paying wards ought to enter into our calculations at this point. To expect an increased revenue from workmen's contributions can be justified by the improvement in the economic position of a large section of what used to be considered the proper hospital population, but the middle classes, whose financial position is far less sound than it was before the war, can no longer be left aside to pay and never to receive. They subscribe to hospitals to which they do not go, and they are unable to command through consultants and specialists and institutional amenities the best treatment for their condition. The construction of paying wards would be a powerful incentive to many who do not as yet subscribe to the voluntary hospitals, and the due conditions for their provision are being arrived at gradually. There are problems here of different sorts, to which we have referred recently, whose solution should precede any general establishment of paying wards in connexion with voluntary hospitals; at the same time the needs of the middle classes will have to be met, and this is recognised by their medical advisers as well as by themselves. The provision of paying wards in connexion with existing hospitals should, we think, be regarded only as a temporary solution of the difficulties, but it is one that could come into existence promptly.

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## THE FUNCTIONS OF THE SPLEEN.

REMOVAL of the spleen does not produce any very disastrous results. The animal may be rather anæmic, it may have a diminished capacity of producing antibodies, it will be less resistant to enteric infection and more resistant to tuberculosis, it may be jaundiced less readily by hæmolytic poisons, it may perhaps develop a voracious appetite; and a good many other things may happen according to some observers, while according to others they may not. In any case, no change regularly follows splenectomy which has any great influence on the vitality or morbidity of experimental animals. It does not follow that man is equally indifferent; his standard is higher and he is more carefully observed, and in much larger numbers. But there must be a good many spleenless individuals in the world, and no definite asplenic syndrome has been identified as an illness. As an article of faith we must believe that if the spleen did nothing, it would not be there. In other words, the spleen is useful but not necessary. What is known of its functions is summarised by Dr. E. B. Krumbhaar in the last number of *Physiological Reviews* (1926, vi., 160), and his copious bibliography will enable anyone to follow the ramifications of any of the hypotheses or results of observation.

Last week we were able to publish some of the most recent progress which has been made by Prof. Joseph Barcroft and his colleagues at Cambridge. His lecture at Leeds is a supplement to one which he gave at Manchester some year ago, published in THE LANCET at the time (1925, i., 319). He deals with two main functions—the spleen as a reservoir of blood and its action in altering the resistance of red blood corpuscles. By fixing metal clips round the edges of the organ and X raying the animals, or by watching it through a celluloid window in the abdominal wall, Prof. Barcroft establishes that the spleen in a normal animal at rest is a good deal —two to perhaps four times—bigger than it is after death, and that our ordinary ideas of its actual size in vivo are by this amount in error. The excess of the living over the dead size is blood or red corpuscles, or something between the two. Hæmorrhage stimulates the spleen to expel this excess into the circulatory blood and the amount expelled is roughly proportional to the severity of the hæmorrhage. Exercise has a similar effect, and the possibility of adding fresh hæmoglobin to the circulating blood may help an animal to withstand CO poisoning. The spleen, therefore, functions as a reservoir of spare blood which can be emptied into the general circulation when desirable. Quantitatively it is not a large tank. The dead weight of the human spleen is about 0·25 per cent. of the body-weight, its live weight one supposes may be 0·75 per cent.; it can, therefore, add 0·5 per cent. to the blood which constitutes some 5 per cent. of the body-weight. Making allowance for the fact that the mixture discharged from the spleen is more concentrated than blood, we may conclude that the reservoir is able to increase the circulating red corpuscles by some 12 or 15 per cent. —a useful thing to do, but not necessary to life, though it may well be just enough sometimes to turn the scale in favour of survival. As Gross has shown, the human spleen goes through a regular series of age changes which leave it a fibrous and apparently rather functionless organ in middle life and later, and this is, perhaps, one of the explanations of its characteristic failure to achieve useful but unnecessary activities involved by age. On this and other points Prof. Barcroft will awaken attention, and he has enabled us to look at the spleen and its vagaries in the postmortem room with new ideas of interpretation in our minds. And if Henry Gray had not died of small-pox at the age of 34 he might have secured that his essay "On the Structure and Use of the Spleen," which won the Astley Cooper prize in 1853, should be as familiar as the "Descriptive and Surgical Anatomy" of 1858. We should, then, as Prof. Barcroft points out, have known the essentials of all this without being told, for Gray clearly states the main point and, indeed, might with a good deal of luck have just been able to rise in Prof. BARCROFT's audience and state it again.

The other topic with which Prof. BARCROFT dealt in his recent lecture is the resistance of red cells to hypotonic saline. The red cells coming out of the spleen are less resistant than those going in; if the spleen is made to empty itself out by stimulating the splanchnic, the red cells which come in as it is allowed to refill acquire their increased fragility almost at once. What this means we do not know. Especially we need to find out how much blood passes through the spleen per hour, whether any red cell goes into the spleen more than once, and hence whether this acquired fragility is lost again in the general circulation. But we can add to these facts the human experience that splenectomy alleviates congenital acholuric jaundice and raises the resistance of the fragile red cells which are characteristic of that disease, and that it cures splenic anæmia. Perhaps we have at last an explanation of the puzzling variety, described by Prof. E. H. KETTLE and others, of the anatomical changes in the large spleens removed so successfully in this condition; any hypertrophy of the splenic tissue may diminish the resistance of so many cells or diminish it so much that actual anæmia results irrespective of the original cause of the splenic enlargement. Add, too, that splenectomy inhibits the production of jaundice by arseniuretted hydrogen and of anæmia by phenylhydrazine and perhaps also, in view of the possible relationship between red cells and blood platelets, that it can cure purpura. All of which adds up to the summary conclusion that the spleen does something to red cells which makes them more easily destroyed. Whether this mechanism is one of emergency or in constant use remains to be discovered. The spleen is no doubt sometimes useful; it is evidently not necessary; medicine supplies us with illustrations of how it may be harmful.

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## INFECTIOUS DISEASE LEGISLATION.

WHAT is the legal meaning of "infectious disease"? The expression occurs in the Public Health Act of 1875—for example, in Sections 80 (by-laws as to common lodging-houses) and 120 (cleansing and disinfection of premises and articles)—but it is not explained. In Section 123 of the same Act (relating to conveyance of infected persons) we are introduced to another unexplained expression, "infectious disorder", while in several other sections—for instance, 121 (destruction of bedding) and 124 to 129 (removal to hospital, penalty on exposure, &c.)—there is a further variety, "dangerous infectious disorder," no guide being furnished as to its application. Elsewhere in the Act we find allusions to "cholera or any other epidemic, endemic, or infectious disease," with a subsequent variant "any formidable epidemic, endemic, or infectious disease." Where a term like "dangerous infectious disorder" enters into the by-laws of local authorities, some degree of uniformity may be obtained by the adoption of a standardised definition from model by-laws drafted in Whitehall. And probably there is in practice but little doubt whether a particular disease comes within any of these several statutory classifications or not. Nevertheless, the vagueness of the phrases and the deliberate adoption by Parliament of different expressions and of strengthening epithets like "dangerous" and "formidable" might at any time present the law courts with puzzles for solution. The Infectious Disease (Notification) Act of 1889 was much more explicit. As is well known, Section 6 of that statute specifies the "infectious disease to which this Act applies." The list consists of small-pox, cholera, diphtheria, membranous croup, erysipelas, scarlatina or scarlet fever, and typhus, typhoid, enteric, relapsing, continued, or puerperal fevers. Additions can be made to the list locally on the resolution of the local authority with the approval of Whitehall. This list is definite enough, and it has been made to do duty for other purposes. It is adopted by the Infectious Disease (Prevention) Act of 1890 (which contains a similar provision for local extensions), the Public Health (London) Act of 1891, the Isolation Hospitals Act of 1893, and the Public Health Acts Amendment Act of 1907. Last year it was further applied, the specified "infectious diseases" in the 1889 Act being deemed "dangerous infectious diseases" within the meaning of certain provisions of the Public Health Act of 1925—i.e., the non-adoptive provisions of Sections 57 (contact with dead body) and 58 (common lodging-houses); at the same time the Minister of Health was authorised by Parliament to enlarge this list of "dangerous infectious diseases" by orders either general or local.

From this survey of the field it will be seen that the weapons we possess for fighting infectious disease under the various Public Health Acts are of two kinds. On the one hand, there are powers which are available against the specific diseases mentioned in the 1889 list (with any local extensions); on the other hand, there are powers for use generally against unnamed diseases. This situation gives rise to anomalies to which Dr. T. S. MCINTOSH[1] has usefully drawn attention. Thus, plague was made notifiable under departmental order in 1900, and was dealt with by three sets of regulations in 1907 in relation to ships from foreign ports, coasting vessels, and ships outward bound. But plague is not mentioned in the list in the 1889 Act; it is, therefore, not within the 1890 Act, unless by virtue of local application; consequently, the power of disinfecting bedding under the 1890 Act will not apply to the flea-infested mattress on which a plague patient has been sleeping. Again, dysentery is notifiable by virtue of the Ministry of Health Regulations of 1919, but, as a matter of general law, it is not an infectious disease within the 1907 Act, so that anyone knowingly suffering therefrom is not universally prohibited under Section 62 of the 1907 Act from carrying on business and spreading the risk of infection. No doubt these anomalies are mitigated by the elastic system of departmental orders and regulations which substantially cover the field; but its very elasticity has the drawback that practitioners are not always aware of the latest developments. The list of diseases made notifiable in England under departmental regulations is an ever-lengthening one; the regulations usually apply to the Infectious Disease (Notification) Act of 1889 and other enactments, but the language is by no means uniform. The list does not include infective jaundice and infantile paralysis, which are both notifiable in Scotland; it no longer includes measles and German measles, which were added in 1915 but were removed after the war, though often made notifiable locally; and it does not include venereal disease, concerning which we recently noted the interesting local provision in Section 68 of the Bradford Corporation Act of 1925. But the list does include (as from the years mentioned in each case) plague (1900), tuberculosis and except in London (where they are notifiable under L.C.C. order of the same year) cerebro-spinal fever and acute poliomyelitis (1912), ophthalmia neonatorum (1914), acute encephalitis lethargica and acute polio-encephalitis (1918, made permanent in 1919), and malaria, dysentery and trench fever, acute primary pneumonia and acute influenzal pneumonia (1919). Is every practitioner, one wonders, aware that acute primary pneumonia is a notifiable disease? When Parliament undertakes the revision and consolidation of public health legislation, there will be an opportunity to make all the weapons in the public health armoury available against all infectious diseases even though those weapons may be more effective and appropriate in some cases than in others.

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[1] A Note on the Law Relating to Infectious Diseases, Medical Officer, Feb. 20th, 1926.

# Annotations.

"Ne quid nimis."

## THE BIOCHEMICAL SOCIETY.

THE Biochemical Society held its hundredth scientific meeting at University College, London, on Saturday last. Although celebrating a century, the Society is still in its teens, for it originated in January, 1911, at the instance of Mr. J. A. Gardner and Prof. R. H. A. Plimmer. Moved by an announcement that an alien was to be invited to teach British workers how to apply chemistry to biological problems, these two biochemists had a conversation on the telephone which resulted in the despatch of 55 postcards to their countrymen already engaged in this field of work. A meeting resulted at which the 32 attenders determined to form a society, as they put it, "to promote intercourse among those biologists and chemists mutually interested and concerned in the investigation of problems common to biologists and chemists." From this small beginning, in spite of national and international upheaval, the Society has grown to a present membership of 485, of which one-tenth is in the British Dominions overseas. At a dinner held on the evening of March 13th to celebrate the occasion Sir F. Gowland Hopkins presided, and the salient facts in the history of the Society were related by Mr. Gardner and Prof. Plimmer, respectively treasurer and first secretary of the Society, and by Prof. A. Harden, editor of the *Biochemical Journal.* The debt owing to these pioneers in surmounting early difficulties was duly honoured by those present. Realising the importance of adequate publication, the original officers of the Society and their associates acquired the *Biochemical Journal*, at that time the property of the late Prof. Benjamin Moore, and were fortunate in securing as co-editors the services of the late Sir William Bayliss and of Prof. Harden. A circulation of about 500 copies was at first the distant aim, but we learn that the number distributed now more than doubles this figure. The Society takes some pride in the fact that in spite of such heavy commitments its annual subscription remains below that of any similar society. The dinner concluded with an eloquent tribute paid by Prof. E. H. Starling, who took the chair at the scientific meeting, to Sir F. G. Hopkins's leadership. Hopkins had, he said, excited the respect of fellow-scientists for a new branch of chemistry and was himself the founder of a great biochemical school at Cambridge. It remains to note that, among the papers read at the hundredth meeting, was a brilliant research on the chemistry of thyroxin by Dr. C. R. Harington. There is no doubt that a Society started with such happy augury, and showing in its adolescence such signs of active growth, has yet further conquests to make.

## THE CHANCELLOR AND THE INSURANCE SURPLUSES.

THE existence of continued large surpluses in the National Health Insurance Scheme has, as we anticipated, led the Chancellor of the Exchequer to seek some relief for the taxpayer by reducing the Exchequer contribution towards the cost of benefits under the scheme. The Economy Bill, with its explanatory memorandum, proposes that the Exchequer contribution, instead of being as at present two-ninths of the cost of benefits of men and women, should for the future be one-seventh in the case of men and one-fifth in the case of women. In the interpretation of fractions we confess to a sympathy with the writer—we think it was Mr. A. A. Milne—who said that when the price of his shares one day moved from $10\frac{5}{8}$ to $10\frac{11}{16}$ it was a moot point whether they had, in fact, gone up or down. It becomes clear, on reading further into the memorandum, that in this case the movement of the Exchequer fraction is a downward movement, and the Exchequer, we are given to understand, will contribute in future £2,800,000 less to the cost of benefits than it would have done under existing arrangements. The Royal Commission, in their report, found that, on a modification of the original actuarial calculations in connexion with national health insurance, it had become established that more money was being raised than was required to pay for the normal benefits. The Exchequer has now absorbed the available margin, so that no part of it can be applied to extensions of benefit. The cost of the extensions which the Commission has recommended and placed first in order of priority—the provision of specialist services, bedside consultations, and laboratory aids—can only be met, in the view of the Commission, by pooling one-half of the future surpluses of societies, which will be considerably diminished by the withdrawal under the Economy Bill of part of the Exchequer contribution. We may expect to hear something on this subject in the near future from the approved societies. It is true that the money has accumulated owing to the amount of actual sickness being less than was allowed for by the actuaries who drew up the scheme in the first instance, but the surplus has been allotted in part, and was to be allotted in far larger measure, to relieve the minor forms of ill-health which, although they do not amount to scheduled illness, actually sap the health of the nation. Any reduction of the Exchequer grant, although its effect may not be immediately felt, will limit the possibility of instituting dental and nursing services which are as essential to the insurance scheme as other benefits, and it would be lamentable if at the moment when the report of the Royal Commission has opened the eyes of many people to the more hopeful developments of health insurance the opportunity should be lost. Rapacity is a necessary quality in a Chancellor of the Exchequer, but immediate economy is to be deplored when consequent waste in the future must result.

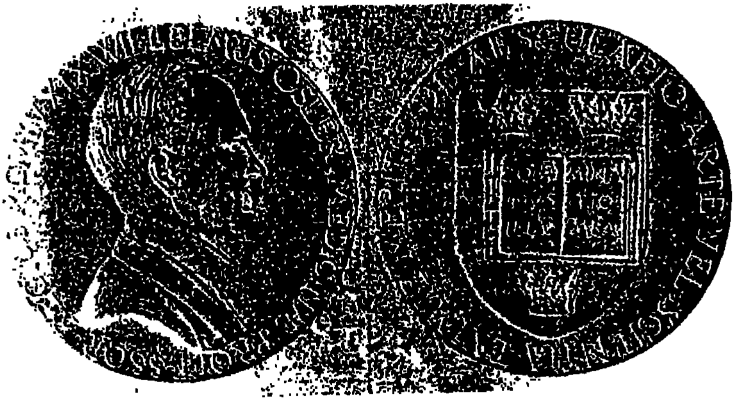
## MALARIA PROPHYLAXIS IN THE ROMAN CAMPAGNA.

THE protection of 800 square miles of Roman Campagna against malaria suffered a set-back during the war, when quinine became expensive, when the young doctors who had learned to treat cases and see to quinine distribution were taken away for the army, as were the nurses who helped in prophylaxis, and when drainage schemes were stopped. Later, to grow the wheat the nation wanted, young workers, who knew nothing of quinine, were brought in, and Austrian prisoners who suspected quinine when offered. These refused to take it and suffered severely. Where enough was available and quinine was given in sufficient doses malarial prophylaxis by quinine justified itself, though it was much spoken against by people who complained that it had brought back malaria to the Campagna. This greatly vexed Signora Celli-Fräntzel, who saw the life-work of her husband, Angelo Celli, being discredited, and, finding she could make no headway by articles or lectures, she took service as a Red Cross nurse at Maccarese, one of the worst spots in the Campagna. Here, taking 10 gr. of quinine a day herself, she set out to win the peasants back to the true faith, as she tells in the December number of the *Archiv für Schiffs- u. Tropen-Hygiene*. The peasants were ready enough to take quinine from her if they were ill, but avoided prophylaxis until one pernicious case died in 24 hours. Then some allowed themselves to be persuaded, and in a little, two-thirds were taking quinine. Finally, she converted even Prof. Grassi, hitherto unconvinced, on whose advice the King put her in charge of malaria prevention on one of his large estates. The next year the Ministry of Health gave her eight nurses, who visited the farms and saw the tablets swallowed. In three years at her centre 807 protected persons had 24 (3 per cent.) attacks, but 102 unprotected had 31 (30 per cent.); for the rest the attacks of the protected were trifling, none was pernicious. Quinine prophylaxis requires, says Signora Celli, zeal, determination, and personal attention. The Italian Marine Corps controlled administration by urine examination. The Italian Artillery was notably free from malaria owing to the closeness with which men and officers were thrown together and the interest taken by the officers in seeing that their men took their little daily dose.

## THE OSLER MEDAL.

THE photograph which we publish shows the obverse and reverse of the bronze medal which has been designed for the Committee of the Osler Memorial Fund by Mr. F. Bowcher. The Osler Memorial Fund was accepted by the University of Oxford last year together with a plaque by Mr. Vernon, of Paris. An account of the unveiling of the plaque by the Vice-Chancellor in the University museum on June 10th, 1925, was published in THE LANCET.

THE OSLER MEDAL: OBVERSE AND REVERSE.



The Osler memorial bronze medal is to be awarded once in every five years to the Oxford medical graduate who shall, in the opinion of the Board of Awarders, have made the most valuable contribution to the science, art, or literature of medicine, and who has not previously received the medal. The residue of the income of the fund, after payment of all expenses in connexion with the medal, may be used at the discretion of the members of the Board of Awarders resident in Oxford, in making grants from time to time to teachers in the Oxford Medical School, to enable them to pursue some special study connected with medicine outside the University. The first award of the medal was made on June 10th, 1925; the next will therefore be made in 1930.

## MENSTRUATION AND PAIN.

WHEN the Victorian young lady took to her room and left word that she was "unwell," she was not taking refuge in an empty euphemism. The monthly periods seem to have been a much more severe ordeal to her than they are to her grand-daughters, and she accepted malaise, headache, and more or less severe pain in the hypogastrium and back as part of the order of Nature. It is true that some gynæcologists still teach that pain is the normal accompaniment of menstruation, but statistics show that only about 70 per cent. of healthy modern women, such as public school girls and Civil Service candidates, experience it; and certainly if women suffered as a sex what they are supposed to have suffered 50 years ago they could not have taken the large part they have in business and professional life. Nevertheless a fair number still find their periods a real handicap, and their sufferings have provoked the question, "Why does a normal function cause pain?" The first reply is, of course, the counter-question, "Is it a normal function?" Prof. A. Pinard and others have maintained that the normal woman would never menstruate; Nature intended that from her first period onwards her sexual life should be a continuous series of pregnancies and lactations. The subject is discussed fully and with an exhaustive bibliography in the able monograph which Prof. V. Wallich has written for Prof. Ch. Richet's monumental "*Dictionnaire de la Physiologie*," now in the press. This monograph has been printed and circulated separately, from the dictionary's formes.[1]

Prof. Wallich points out that although the hæmorrhage has naturally drawn both social and scientific attention to itself, to understand the real significance of the monthly cycle it is essential to follow its variations through the whole mammalian species and to study the complex of symptoms, of which bleeding is only one and not an invariable one at that. The main fact is a periodical congestion of the female genital organs which marks the crest of their rhythmical activity and ceases when they take up their proper work of reproduction. Anatomical observation shows a profound modification of the mucosa uterina, the whole of which undergoes tumefaction and hyperplasia in order to fit it to receive and nourish the fertilised ovum. Simultaneously there is a psychic awakening that induces the female to seek the company of the male. This phenomenon of congestion occurs in all mammals and is more intense in some than in others; there is always some degree of hæmorrhage, but this may take place only in the interstices and may never show itself in the uterine cavity or at the vulva at all. Prof. Wallich states that the bleeding is probably more profuse in the higher primates because their heavily-muscled and plexiform uterine wall locks the capillaries of the mucosa and prevents them from expanding properly at the time of congestion. They are fragile and rupture easily. In the horned uteri of the lower mammals the vessels have a bed of cellular tissue in which to expand, and any hæmorrhage there may take the simple form of infiltration into the submucous layer.

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[1] Librairie Félix Alcan, Paris.

It has been demonstrated beyond question that menstruation depends on ovarian function. It ceases altogether when the ovaries are removed, but the slightest trace of ovarian tissue left behind or ingrafted will cause the phenomenon to persist or return. Prof. Wallich concludes that every part of the ovary is concerned in producing the reaction and that no one part preponderates over the rest. Blood examination has shown that secretions are present at the menstrual crisis that are not found at any other time, and it is almost certain that, even in mammals subject to hæmorrhage, the flow is not the only way in which these substances are excreted. The intensity of the menstrual changes varies with latitude and season; the most favourable time for conception in our latitudes is the month of May. This probably corresponds with the general biological quickening-up that all creatures experience at the end of winter, and has been shown to depend to some extent on the lowering of the lecithin content of the blood, which is raised in winter and which counteracts the secretion of the interstitial tissue of the ovaries.

On this view menstruation is the compromise with Nature allowed to females who are not fertilised when they come on heat, and just so far is menstruation a "natural" process. The lives of many women show that the price is no very heavy one, and the psychological factor in dysmenorrhœa may prove, when more is known about it, to play a major part. It is permissible to conjecture that the woman with painful periods is paying not only for her failure to conform to Nature's law that she should conceive every time she menstruates, but also for her lack of adaptation to environment—physical, moral, and mental. The Victorian spinster suffered, not only because she did not have children, but also because she took no exercise and because she failed to make psychological terms with her sex. Modern women are more closely adapted to realities; they are better ventilated, both in body and mind.

## MENTAL DEFICIENCY AND IMPRISONMENT.

FOR the third time in little more than a year public attention has been invited to the fact that the full value of the Mental Deficiency Act is lost, the community is injured, and the prison establishment is unfairly burdened because the Act contains the unfortunate requirement that the condition of mental defect must be shown to have existed from birth or early age. Twelve months ago the Prison Commissioners pointed out this flaw in the working of the Act[1]; some months later the Committee on Sexual Offences recommended an amendment to remedy it[2]; and now the Prison Commissioners in their recently issued report for the year 1924-25[3] have emphasised the same point again. The requisite proof of mental deficiency from birth or early age, they say, frequently cannot be given; if a parent or guardian chooses to make mis-statements on the subject when asked for information, it is difficult to controvert them. Medical officers can bring forward cases of unmistakable mental defect, yet they find it impossible to give a certificate in the absence of the required particulars of the patient's early history. As in the case of insanity, so in the case of mental deficiency, it should be the patient's present condition which should determine the issue of certification. Dr. G. B. Griffiths, the Medical Commissioner, in his contribution to the recent report, explains the significance of the wording of the Act as it now stands. In the past four years 985 mental defectives who had come in conflict with the law have been dealt with under Sections 8 and 9 of the 1913 Act and, instead of being sentenced to imprisonment, have been either certified and removed to institutions while undergoing sentence or else have been sent to a "place of safety" pending the presentation of a petition on their discharge from prison. Thus nearly a thousand persons have been withdrawn from the army of habitual offenders, and the gradual decrease in the numbers of our prison population and the general diminution in crime may be attributed in part to the segregation of these persons in institutions. But clearly there are still many mental defectives whom, because of the flaw in the Act, it is impossible to certify. Prison, says Dr. Griffiths, is no place for them since they are unfit for prison discipline, and a few weeks or months of imprisonment has no curative and possibly no deterrent effect upon them.

The Commissioners' report (as in previous years) makes the further suggestion that the Mental Deficiency Act might, with advantage to society, be extended to provide proper care and control for cases of subnormal mentality and mental instability. The medical officer of Brixton prison points out that cases of mild senile or other dementia are unprovided for; persons of this type commit trifling offences often because they are unable to earn a living. They are not certifiable as insane, yet are no longer able to look after themselves in our complicated social system. The medical officer at Holloway similarly mentions (as last year) the type of debilitated women who have become defective either through senility, alcohol, or their mode of life. They are not at present covered by the Act, yet are unfitted for employment, and on release from prison drift into the workhouse or else return to prison again. Two other interesting points from the medical officers' reports may be mentioned. One is the reference to post-encephalitic delinquents at Brixton, cases resembling congenital defectives in their mental characteristics, apparently hopeless and likely to increase in number unless and until some sure method of curing or protecting against encephalitis lethargica is discovered. The other point is made by the medical officer of Birmingham prison, who boldly says that the whole question of the correct treatment of offenders is a purely psychological matter. No prison punishment, he remarks, can be inflicted without the medical officer's concurrence. "It is but a short and logical step to the position that no sentence of imprisonment should be awarded, or any order of court made, without due attention being paid to the findings of an adequate medical examination." Judicial comments upon this perfectly rational proposition would be entertaining. Mr. Justice Shearman has just been telling a jury in a criminal case that it is not for "Harley-street" to decide questions of insanity. What will he say to the suggestion that "Harley-street" should pass sentence?

## THE COUNTRY DOCTOR IN FRANCE.

IN the *Petit Journal Illustré* (Paris) of March 7th M. Jean Lecoq has written an interesting article entitled Le Médecin de Campagne. After citing Balzac and the good Dr. Benassis, the friend of the poor who was always remembered by them in their morning and evening prayers and who accepted money from the rich only to buy with it medicaments for the poor, the author next quotes Flotow in the old and favourite comic opera, "L'Ombre," where the jolly médecin de campagne always seasons his treatment with a happy couplet, so that as soon as the sound of the neck-bell of his mare is heard, "le malade sourit, et bien souvent guérit," which agrees with the opinion of Molière that "lorsque le médecin fait rire le malade, c'est le meilleur signe du monde." He then cites Humbert de Romans, an authority in his time, and the rules he laid down for his disciples to follow in their medical treatment, but which dealt more with their habits, deportment, table manners, and light conversation. His counsel was that "as you probably won't be able to diagnose the complaint, tell the patient that he has obstruction of the liver, and when he replies 'No, master, it is in the head that I suffer,' reply quickly, 'Ah, that comes from the liver.'" Also, he suggested, "make good use of the word 'obstruction' as they won't know what it means and they shouldn't know." France to-day, says M. Lecoq, contains about 21,000 doctors, a figure which is a little surprising, for it implies considerable scarcity of medical service in some districts. For it must be remembered that the large class of *officiers de santé*, abolished in 1892, is very nearly extinct, something under 500 names only now remaining on the official list In the time of Louis Philippe, that is to say, about 80 years ago, there were less than 8000 doctors and many districts were totally deprived of them At the time of the Franco-German war, in 1870, France had 14,000 doctors, showing a rise in the numbers which had no relation to increase of population. On the eve of the recent war there were 20,000 qualified medical men in France, and complaints of the overcrowding of the profession were heard, but, of course, chiefly in the towns. In Paris to-day there is one doctor for fewer than 900 inhabitants, which is much the proportion that prevails in this country save in particular centres. But certain departments have not enough doctors to deal with disease in modern manner, allowing that conditions of life in the mountainous districts will always be difficult, as they still are difficult with us in Scotland despite special legislation to meet the needs of the Highlands and Islands

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[1] THE LANCET, 1925, i., 196.

[2] THE LANCET, Jan. 2nd, 1926, p. 45.

[3] Cmd. 2597. H.M. Stationery Office. 1s. 3*d*.

' How many doctors," asks M Lecoq, "have vegetated in the Paris suburbs who might have had a larger and happier life in the country if they had not allowed themselves to be caught by the bait of the large town with its often illusory promise of fortune and glory" And he proceeds to point out that conditions of country life are now different, for no longer does the doctor's old nag joggle the life out of him and restrict his range of visits , his little motor-car takes him at his ease for miles and, moreover, the country populations are now more prosperous and can pay better They no longer consult first the bone-setter and the 'old wife' who knew how to set the saints to work and which saints to appeal to for such and such complaints" Cherville, in his book 'Village Studies," depicts the wrath of a peasant who was asked by the doctor three francs for five minutes advice a sum which was as much as he gained the whole day guiding the plough He ought to have had a quarter of an hour at least, he thought, but nowadays says M Lecoq, the peasant understands that time does not enter into the matter like that, and that science has its value and should be paid for In short, with more general well being, more light has entered the rural world, which is so much the better for the country sick and the country doctor M. Lecoq s peroration is: "Thy profession, good doctor, was for centuries hard and profitless but the future will be better than the past. Be like thy predecessors, the curer of the body and the consoler of the spirit, following the resolution expressed by the poet François Fabié, in beautiful lines which thou didst inspire:

*Sauve, le plus que tu pourras,*
De la Faucheuse aux maigres bras
Le paysan qui plante et sème
Jusqu à l'heure où tu t'en iras
Sans regret la trouver toi même.

## THE HUMAN FACTOR IN ACCIDENT CAUSATION

A report has just been issued[1] by the Industrial Fatigue Research Board which may frighten off many readers on account of its statistical appearance, nevertheless, it contains much of great interest Some years ago the Board published an investigation by M. Greenwood and H M. Woods[2] in which an effort was made to measure the influence of the personal factor upon accident causation This investigation was confessedly only a preliminary one The report now issued attacks the problems again making use of new and more extensive data. Over 16,000 minor accidents which occurred in a variety of factories are submitted to careful statistical analysis The writer, Miss E M. Newbold, appears at times to be over-cautious in drawing her deductions Suffice it to say that the conclusions arrived at in every way substantiate those of previous inquiry The average number of accidents is found to be influenced by a comparatively small number of multiple accident people, individuals with an innate tendency to sustain accidents Nevertheless, on the whole the people with most accidents have usually been a shorter time in factory employment. Possibly those predisposed to accidents become naturally eliminated. The chance of an accident occurring appears to differ for each person, even though employed on the same work. A useful table is given from which an answer can quickly be obtained to the question whether the accidents in any department are due mainly to the accident risk associated with the work, or to the presence of a few people who have many accidents, the method of using the table is explained Experience is an important factor, and the level of the accident rate varies inversely with the experience of the workers but even after allowance is made for this, a definite tendency is found for younger workers to have more accidents than older ones. This tendency helps to explain why sudden rises in accident-rates are associated with increased trade, due to the engagement of young as well as green labour A curious fact emerges that the accident-rate and the death rate with respect to age are opposed; whereas the former falls with age, the latter rises The accident death rate rises, due to increased 'tendency to die" among older people, rather than to any increased "tendency to have accidents." The same fact holds true for illness—viz., the average duration of any single case increases with age. Another interesting point is the evidence found that the number of accidents an individual has is positively associated with the number of times he falls sick. So that in the saying what is the matter with the sick is their tendency to be sick," the word sick" *must be held to include a tendency* to accidents Many attendances at factory ambulance rooms are on account of accidents which take place away from the works. Examination of these records brings out the fact that the same people who are *unfortunate* in the factory *seem also to be unfortunate* at home, and that there really are some people in whose hands knives and plates are not safe The importance of the personal factor in accident causation is difficult to exaggerate, since over 80 per cent. of all accidents have no mechanical origin and not more than 5 per cent can be attributed to factors outside human control What holds good for accidents taking place within the factory walls is presumably also true for the occurrences of ordinary life, but these latter do not lend themselves to careful investigation. Moreover, the association between sickness and accidents is significant. How few of us appreciate that when we *sustain some slight injury* we are really not quite fit, and that such incidents as multiple losses of property, such as leaving an umbrella in the train, have the same meaning While congratulating Miss Newbold on the way in which she has overcome the difficulties inevitable to such an intricate investigation, we are glad to learn that the whole subject is being further investigated, particularly to ascertain how far a tendency to sustain minor accidents may be taken as a criterion to succumb to major accidents

## MEDICAL AND DENTAL REGISTERS.

We have just received copies of the Medical and Dental Registers for 1926 and of the Medical and Dental Students Register for the corresponding period. The total number of persons registered under the Medical Acts from the beginning of registration in 1858 up to Jan. 1st 1926, is 98,308, and 52 531 are said to remain on the Register as made up on the last day of 1925 These are 2073 more than in the 1925 Register, distributed over the three sections into which the Register is still divided, although some of this increase may be illusory, for an error seems to have crept into the number in the Foreign List as given in Table D, where the total of 232 is 121 in excess of the 111 names given in the 1925 table, although only 8 names have been added by registration. These two figures have, it seems, inadvertently been added together, and the number should therefore, in accordance with our calculations, be reduced by 111. The same oversight seems to have affected a figure of 3243 given in the same table for the Colonial List. From a study of Table E we deduce the total number of registered persons as 50,035 on Jan. 1st, 1925, and 51,737 on Jan. 1st, 1926, an increase of 1702 names. The excess of numbers in any year over the previous is, of course, due to a balance between the number added by registration and the number removed. The numbers added by registration are given in Table E as 1246 for England, 736 for Scotland, 406 for Ireland, 173 for Colonial, and 8 for Foreign, while, of the 947 names removed, 794 were removed on evidence of death, 1 on ceasing to practise, 146 under Section XIV., and 6 under Sections XXVIII.–IX. of the Medical Act. We learn that 1602 copies of this Medical Register have been printed, 872 of which have been earmarked for medical practitioners registered in 1925, of which it is curious to note the expectation that 472 will be claimed by Scottish practitioners. The number of copies available for sale is 400, an edition which is likely to melt away under the demand due to the present interest in the General Medical Council and its doings. The only substantial addition to the contents of the book is a reprint of the Medical Act, 1925 (Irish Free State), passed on Feb. 21st, 1925, to continue in force for one year only from that date. The Register contains, as everyone knows, the full text of all the Medical Acts from the first Act of 1858, the names of members of the Council, and copies of the warning notices issued to registered persons whether medical men or dentists. We cannot help regretting that the admirable memorandum written by the Registrar of the Council on the constitution, functions, and procedure of the Council has not been included in the volume. The Dentists Register contains 14,199 names, of which 14,111 are United Kingdom dentists, and of these 5841 possess licences or degrees in dentistry. There is an increase of 381 names on the 1925 Register; during the year 1925, 546 names were removed, 115 on evidence of death and 425 under Section 7 of the Dentists Act, 1921; and 400 names were restored, mostly under the same section. This Register contains no important additions in the text, apart from the revised list, and enclosed with it as usual is the list of bodies corporate carrying on the business of dentistry and the names of the directors of these bodies. The lists of medical and dental students registered during the year 1925 contain the names of 1070 medical students and 191 dental students, being respectively 27 more and 9 less than the corresponding figures last year. All these three volumes are published for the General Medical Council or the Dental Board by Constable and Co., Ltd., the prices being respectively 21*s.*, 12*s.*, and 7*s.* 6*d.*

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[1] A Contribution to the Study of the Human Factor in the Causation of Accidents. By E. M. Newbold, Industrial Fatigue Research Board. H.M. Stationery Office, 1926. Report No. 34 1s.

[2] Greenwood, M., and Woods, H M (1919) The Incidence of Industrial Accidents upon Individuals with Special Reference to Multiple Accidents, Industrial Fatigue Research Board. Report

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DONATIONS AND BEQUESTS.—Among other bequests the late Mr. Warley Pickering, of Hutton Hall, Guisborough, Yorks, left £1500 to the North Riding Infirmary, Middlesbrough, and £1500 to the North Ormesby Hospital, Middlesbrough.—Mr. William Alfred Sammes, Windsor, who left £23,888, after various bequests amounting to £2000, left the residue of his property between St. Andrew's Hospital, Clewer, St. John's Home, Clewer, and King Edward VII. Hospital, Windsor.—Miss Laura Lushington, of Reading, Berks, left £100 to the Samaritan Fund of Guy's Hospital. —Mrs. Elizabeth Crawford-Hayes, Clarges-street, Mayfair, W., widow of Dr. Thomas Crawford-Hayes, left the residue of her property to King's College Hospital, London, for Crawford-Hayes beds. The amount available for this purpose will be about £19,000.—Miss Amelia Broadbent, of Buxton, left £2000 in trust for her cousins for life, and then £1000 to the Manchester Royal Infirmary and £500 each to St. Mary's Hospital, Manchester, and Ancoats Hospital and Dispensary.

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# Modern Technique in Treatment.

*A Series of Special Articles, contributed by invitation, on the Treatment of Medical and Surgical Conditions.*

## CLXV.—ACUTE EMPYEMA IN CHILDREN.

SUCCESS in the handling of a child's empyema depends in no small measure upon early diagnosis. Speedy detection of the pus and prompt application of requisite treatment minimise the risk to life and promote the early and complete re-expansion of the lung, which is essential to the obliteration of the cavity and the final cure of the disease. Fatalities, unhealed sinuses, and chest deformities—"chronic empyemata"—are the penalties more often of casual clinical observation than of ineffectual treatment. Before deciding upon what treatment is applicable to any individual case, it is necessary to appreciate the type and virulence of the abscess and its precise significance in the general clinical picture. In every empyema evacuation of the pus from the pleural cavity is urgently called for, but the way in which this is done may make all the difference between success and failure; one routine treatment for all cases—e.g., opening the chest and inserting a drainage-tube—while it may cure many, will certainly prove unavailing in some. When the exploring needle has confirmed the presence of pus, the following points must be carefully considered before deciding upon the wisest method of evacuation: (1) The age of the child. (2) The size and situation of the empyema. (3) The general condition of the patient, especially as to whether we are dealing with an empyema which is: (*a*) *synpneumonic* (Cameron and Osman [1])—i.e., coexisting with an active pneumonia; (*b*) *metastatic* —i.e., a local manifestation of, or metastasis from, some distant focus, the child being gravely ill from the generalised infection; (*c*) *metapneumonic.*

The primary object is to save the child's life and in many cases—notably in infants and in the synpneumonic and metastatic types—immediate thoracotomy is attended with grave risk. Fortunately, in these cases the exudate is often conveniently thin and aspiration mechanically simple.

For evacuating an empyema the following methods are available: (1) Aspiration: (*a*) intermittent; (*b*) continuous. (2) Thoracotomy—with or without resection of rib and followed by: (*a*) closure of the opening; (*b*) with drainage either "closed" or "open." (3) A combination of (1) and (2).

### *Intermittent Aspiration.*

Potain's apparatus is commonly employed. The needle or trocar of the aspirator is introduced along the tract of the original exploring needle. The chest wall should be locally infiltrated with ½ per cent. novocaine, or, better still, the child anæsthetised with $N_2O$ and oxygen. The pleural cavity is emptied as completely as possible, the needle withdrawn, and the puncture sealed. The aspiration is repeated as necessary. This simple procedure may suffice where the chest contents are merely turbid serum, but where the empyema is frankly purulent it is very unlikely that all the pus and debris will be really evacuated from the cavity even by repeated aspirations of this type; and though the case may recover, it is almost certain that some deficiency of expansion and chest deformity will remain. Nevertheless, it may be of life-saving value as an adjunct to treatment in certain cases. In very large empyemata —where there is considerable cardiac displacement and the child's respiration is seriously embarrassed— it is always wise to aspirate by this method a quantity of the pus 12 to 24 hours before proceeding to thoracotomy. The operative risk in such cases is thereby sensibly diminished. In bilateral empyemata, in the synpneumonic or metastatic type of case, where an immediate thoracotomy is dangerous, timely aspiration may tide over the acute phase, a successful operation being performed later

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[1] THE LANCET, 1923, i. 1097.

### *Continuous Aspiration.*

In this procedure the aim is to evacuate the empyema gradually by continuous suction drainage, and to keep the cavity empty until the lung has fully expanded and the discharge has ceased The method advocated by F. J Poynton and F N Reynolds is:

The child is anæsthetised. A nick is made in the skin and a special trocar and cannula (size 10 English catheter gauge) is introduced into the empyema cavity The cannula is fitted with lateral flanges bearing slits for tape, as in the case of a tracheotomy tube This enables the instrument to be tied comfortably to the chest wall. If necessary this fixation can be reinforced by strips of strapping. The trocar is withdrawn, and rubber tubing stretched upon an introducing rod is passed through the tube of the cannula into the chest. The tubing should project just beyond the cannula and must be of such a bore (No. 0 rubber catheter) that when the introducer is withdrawn it expands to fit the cannula in a perfectly airtight manner Any misfitting of these two tubes will defeat the subsequent procedure. The rubber tubing is now connected up with a suction pump and receiving bottle. The continuous 'water drip' suprapubic pump, designed 20 years ago by E White, pharmaceutist of St. Thomas's Hospital (Allen and Hanburys) answers admirably The contents of the empyema are slowly evacuated into the receiving bottle. The apparatus requires supervision and occasional adjustment to prevent kinking or blocking by flakes of lymph, but works efficiently in suitable cases.

This method has a wider scope than the intermittent form of aspiration, in that it may be used alone throughout in some cases, and has been shown to really drain the empyema thoroughly. It has the great advantage of requiring only a very simple operative procedure and of obviating the necessity of after dressings. The comfort of these children whose empyemata are undergoing gradual transference to a bottle by their bedside is remarkable. The disadvantages are mainly technical. The requisite supervision of the apparatus has been mentioned Where the pus is thick and fibrinous masses are present the aspiration will be unsatisfactory and should not be attempted except to tide over a crisis in bad cases. But the main difficulty comes in deciding when the drainage may be discontinued In successful cases in seven to ten days the discharge becomes serous, the expansion of the chest and the air entry into the lung approximate to normal, and the tube may be withdrawn, and a dry dressing applied to the puncture In other cases the indications are less clear and withdrawal of the tube may be followed by a disappointing re-collection. In practice the method is valuable when a major operation is undesirable, as in infants under 2 years

### *Thoracotomy*

The majority of empyemata in childhood, at any rate after the first two years of life, are of the metapneumonic type—i e., they are residual abscesses remaining as the unfortunate legacy of a quiescent pneumonia. The pus is thick; fibrinous clots have separated out and enmeshed leucocytes and organisms in great numbers, and then settled to rest at the base of the cavity and on the surface of the visceral and parietal pleura, which is greatly thickened and "felted" in consequence. Possibly adhesions have formed and loculi of pus have become shut off from the general abscess cavity. The only satisfactory treatment is to open the cavity freely and evacuate and cleanse it completely A preliminary aspiration, 12 hours or so before operation, is advisable where the empyema is of large size, with cardiac displacement and respiratory embarrassment, or where the child's condition appears at all desperate.

The steps in the operation of thoracotomy are

*Anæsthetic.*—Warm ether and oxygen is the wisest anæsthetic for these cases. In the absence of active pneumonia there is no risk provided the ether vapour is warmed

*Position.*—The child is turned on its face and then tilted so as to bring the affected side uppermost; this position is stabilised by flexing the leg of the same side and placing a suitable pillow or sandbag along the front of the chest.

*Operation.*—The site usually chosen for opening the chest is the posterior axillary line about the level of the eighth or ninth rib The exploring needle will usually have withdrawn the pus at about this point. In cases where an apical or interlobar empyema has to be negotiated, the chosen site must be varied accordingly In such cases it is always wise to explore with a needle and syringe first, and then to follow the needle track carefully in making the incision

A segment of rib of sufficient length to permit easy exploration and toilet of the empyema cavity should always be resected. A simple intercostal incision should only be made where the conditions preclude a more thorough operation The skin and muscles overlying the selected rib being fixed with the left hand, an incision of about 3 inches is made straight down to the rib Bleeding vessels are ligatured and the skin closed off The rib is then isolated by stripping the periosteum all round the bone, and the required length of bone is resected The intercostal vessels and nerve are stripped away with the periosteum and are not likely to be injured The parietal pleura is now incised and the opening gradually enlarged with sinus forceps. The pus should be let out slowly and sucking in of air should be prevented as far as possible by keeping the opening covered by gauze packs. Coughing and laboured respiration, common at this stage, render such protection additionally necessary The liquid pus having been evacuated the operator proceeds to remove all fibrinous masses and to cleanse the pleural cavity Any adhesions are gently broken down with the finger and any shut-off loculi of pus opened up Long curved dressing forceps carrying suitable lengths of gauze serve admirably to clean the fibrinous deposits from the walls of the cavity. Usually, as the visceral pleura is cleared, the lung expands towards the chest wall, and when this occurs the outlook is good. The drainage-tube inserted should be large (18–20) and should only just enter the pleural cavity If possible the parietal pleura should be carefully sutured around it Finally, the muscles of the chest wall are brought together by one or two catgut stitches and the skin edges closed around the tube by interrupted stitches of silkworm gut Closure of the wound without drainage is not to be recommended; it usually fails.

### *Post-operative Treatment.*

The further disposition of the drainage-tube has to be decided on. We may cut the tube short, put a safety pin through it and put on the dressing—the "open" method Frequent change of dressings are required which are trying to the child. Exposure of the open tube leads to coughing, discomfort, and sucking in of air, a device to avoid this (suggested by W H. C Romanis) is to clamp the tube with a small pair of artery forceps. At each dressing these are released The accumulated pus is allowed to run out and the clamp reapplied and incorporated in the dressing Perhaps the best method of all is to leave the tube long and to lead it away below the surface of some antiseptic fluid in a sterile basin beneath the patient's bed. A syphon action is started, which will keep the discharge constantly flowing into the basin. This, which we may term the "closed" method, adds greatly to the child's comfort Dressings must be carried out with the most rigid precautions as to surgical cleanliness Secondary infection, so easily introduced, yet working its havoc so stealthily, is seldom blamed for a disappointing end-result, but is often responsible therefor Tube drainage should be discontinued as soon as possible, indication for discontinuance being a thin, serous, and scanty discharge with normal temperature and good air entry.

Every effort must be made to promote the early expansion of the lung. Within three days of the operation the child should take deep breaths while the sound lung is compressed with the hand. Later the sound side of the chest may be strapped. Once the tube is out the child should be encouraged to lie on the good side and deep breathing exercises should be continued. Woulfe's bottles charged with attractively coloured fluids are usually employed with the object of encouraging expansion.

These cases should be nursed in the open air if possible Convalescence should be completed by a stay in the country or at the sea, and graduated physical exercises maintained to complete the restoration of respiratory function. The standard of final cure should be a full degree of chest expansion as compared with the sound side and no thoracic or spinal deformity

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# Special Articles.

## ACTIVE IMMUNISATION AGAINST DIPHTHERIA.

### THE PRESENT POSITION.

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FOR the modern history of active immunisation in man we need not go further back than to Theobald Smith's suggestion (1909) that mixtures of toxin and antitoxin should be used for the immunisation of human beings. The first attempt to immunise considerable numbers of human beings was made by von Behring who examined various combinations of diphtheria bacilli, toxin, and antitoxin; the method settled down (1913) into the one that has been in general use until recently in Austria and Germany. Broadly speaking, this consisted in the use of an under-neutralised mixture of toxin and antitoxin—i.e., one in which there is slightly more toxin present than can be neutralised by the quantity of antitoxin. The mixture is therefore toxic to animals.

### *v. Behring's Mixtures.*

With regard to von Behring's mixtures, Dr. van Boeckel (1924) in his report to the League of Nations writes:—

> "We do not know the exact composition of von Behring's T.A. mixtures. The fact that they are administered intradermally is not calculated to simplify the technique, which is rendered still more complicated by the fact that the proper sensitising dose has to be discovered before the vaccinating dose can be administered."

This method seemed to be rather difficult to carry out in practice and is falling into disuse in its original home where American mixtures and practice have recently begun to attract attention.

A new and brilliant chapter was opened by Park and co-workers in New York in 1913. They first used a mixture of toxin and antitoxin containing in 1 c.cm. 3 L+ doses of toxin, under-neutralised to such an extent that doses of from 1 c.cm. to 5 c.cm. produced paralysis or death in guinea-pigs. Within the past few years, Park has replaced his original mixture by a second toxin antitoxin containing in 1 c.cm. only 0·1 L+ dose of toxin, though in each cubic centimetre of this mixture the same amount of toxin is left unneutralised as in the original 3 L+ mixture. This second mixture was tested on man in parallel with the original one and gave fewer local reactions, whereas its immunising power was probably better. It is now in routine use in New York and most of the United States of America.

The two American accidents in active immunisation occurred apparently with preparations similar to Park's original mixture. It is now possible to make some statement about the first of these accidents, that at Dallas, the cause of which is clearly understood. A certain volume of toxin added to a certain volume of antitoxin may give a neutral mixture—i.e., one that is harmless to guinea-pigs when injected. But if the toxin be divided into two portions, the first of which is added and thoroughly mixed with the antitoxin, while the second portion is added subsequently, a toxic mixture may result. This is the well-known Danysz phenomenon. The original tests of the mixture used at Dallas had been carried out thoroughly and were apparently completely satisfactory. Owing to an unfortunate mistake the applicability of the Danysz phenomenon to the mixture in question, when, after the first tests the proportions of toxin and antitoxin had to be adjusted, was overlooked, and a toxic mixture resulted. The second of these accidents (Concord, 1924) was caused by the accidental exposure of a mixture to intense cold for several days, when sufficient toxin was released to cause severe reactions in several dozen children. There were, fortunately, no deaths. The explanation of this phenomenon has been given by Glenny and co-workers (1925) in this country. Now that this risk is recognised it is very unlikely that this same mishap will again occur. A very large number—probably several hundred thousand—injections of these American mixtures have been given with complete safety except in the two well-understood instances mentioned, and with excellent immunising efficiency.

With regard to the Vienna (Baden) accident (THE LANCET, Oct. 3rd, 1925, p. 713), it has apparently been impossible to obtain for examination in England a specimen of the mixtures used, so that no close comparison of the Vienna lethal preparation with the American or English mixtures has been possible. It is not easy to deduce from the published account by Helmreich (1925) exactly how the mixture was constituted, although it is clearly stated that it was made of toxin and antitoxin. Presumably the aim was to produce a mixture similar to those used by Park. If, as is suggested, a non-toxic mixture of toxin and antitoxin dissociated under ordinary conditions of storage and became toxic, this phenomenon has not been met with in the very extensive experience of American and English workers.

### *Detoxicated Toxin.*

The next development in the history of immunisation was the use (without antitoxin) of toxin which had been so treated as to deprive it of most or all of its original toxicity while leaving its immunising power still high. In this "toxoid" class come the aged toxin, &c., used by Park (1923), the formalinised "toxoid" made by Glenny and Hopkins (1923), and used by O'Brien and co-workers in England, and the formalinised "toxoid" or "anatoxin" used by Ramon and colleagues (1924) in Paris.

Theoretically, preparations of this toxoid class should be preferable to Park's first or second mixtures, for they can be made completely atoxic to the guinea-pig and they are free from the additional complication of having antitoxic serum present. These toxoids are being tried cautiously in the three countries mentioned; it is possible that they will eventually entirely replace the other prophylactic preparations, but it is too early yet to predict this with any certainty. The immunising power of toxoid is high, but it is apparently rather liable to cause reactions when injected. The concentrated toxoid preparations of Watson and Glenny (1924) may be added to this class; though they produce a high immunity in animals and are atoxic, they have not yet been used in human practice to any large extent.

Another class of prophylactic is represented by the toxoid antitoxin mixtures made and used widely in England. Glenny and co-workers (1924) discovered that if one makes a toxin non-toxic by treatment with formalin—a preparation which has high immunising power—and adds a certain volume of antitoxin to the toxoid, the immunising power of the toxoid is not materially reduced. A typical mixture of the kind would contain in 1 c.cm. about 0·1 c.cm. of "toxoid" made by formalinising toxin with an original minimum lethal dose of between 0·002 c.cm. to 0·001 c.cm. until the lethal dose was reduced to about one-hundredth of its former value or, better, to the stage where 5 c.cm. produced no symptoms in guinea-pigs. In addition to the toxoid, the mixture contains a quantity of antitoxin varying from 25 to 50 per cent. of the amount corresponding to the original neutralising value of the toxin. The mixture which gives the best immunity index is the one chosen for use. This combination is non-toxic to guinea-pigs but gives excellent immunising results in these animals and is apparently a "safe" mixture. Many thousands of doses have been given during the past two years. Even four or five years ago, when the first toxin antitoxin mixtures of the American type were used in England, the standard of toxicity adopted was below that permitted by the official Washington regulations. These latter allow the use of mixtures of which 1 c.cm. will produce paralysis in all the animals injected and death in a small number.

It was found by the aid of the Glenny-Allen (1923) "immunity index" that it was possible to prepare toxin antitoxin mixtures of such low toxicity that 1 c.cm. did not produce paralysis or death, while a dose of 5 c.cm. would cause paralysis or death in either none or at most a small percentage of the guinea-pigs injected, and yet would rapidly produce immunity. Most of the published work in England was apparently done either with mixtures of this type or of the toxoid antitoxin type previously mentioned. These latter preparations appear to have a double margin of safety. They contain toxoid mixed with a quantity of antitoxin and thereafter diluted ten times. The toxoid is itself almost or completely devoid of toxicity. This change from toxin to toxoid is apparently an irreversible one, for in all the intense study of this field by various workers during the past few years there has arisen no evidence suggesting that toxoid in this condition can revert to toxin. Even if this very unlikely change took place and some of the toxoid were reconverted to toxin, the mixture contains sufficient antitoxin to neutralise a large amount of toxin.

### *Lines of Future Progress.*

With regard to possible progress in the future, the main effort is being directed along three lines. The first is to provide active immunisation for children of pre-school age who are likely to be exposed to diphtheria. Most of the work hitherto has been carried out with children aged 6 and upwards, but a great deal of diphtheria occurs in younger children. The second is to increase the immunising efficiency of the prophylactic so that one could obtain the same efficiency of immunisation with two injections or even one, which one now obtains with three. Along these lines progress must be slow. It is easy to make immunising mixtures of very high efficiency in the laboratory. Thus Glenny and co-workers have described a preparation which will make animals negative to the Schick test in 12 days, but the transfer of such work to human practice must be slow, for the greatest caution is necessary. The other effort is to shorten the number of tests and injections by combining them. Park is directing effort to a mixture which when injected will indicate the response to the Schick test and at the same time will act as an immunising agent.

In England there are at present (1926) being tried mixtures which will, when injected intracutaneously into animals, produce a Schick test reaction, and at the same time supply an efficient immunising stimulus. One can thus, when each immunising intradermic injection is given, get an indication of the condition of the patient and know exactly when to cease the injections.

*References.*—Glenny, A. T., Allen, K., and Hopkins, B. E.: Brit. Jour. Exper. Path., 1923, iv., 19. Glenny and Hopkins: Ibid., 1923, iv., 283. Watson, A. F., and Wallace, U.: Jour. Path. and Bact., 1924, xxvii., 288. Glenny, Hopkins, and Pope, C. G.: Ibid., 1924, xxvii., 261. Glenny, Pope, C. G., Waddington, H., and Wallace: Ibid., 1925, xxviii., 473 (Immunological Note xiii.). Glenny, A. T., and Waddington, H.: Jour. Path. and Bact., 1926, xxix., 118.

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MANCHESTER HOSPITALS.—The deficit on the St. Mary's Hospital, which treated 17,201 patients last year, amounted to £1123. To make room for extra beds at the Whitworth-street West Hospital a house in Victoria Park will be made into a nurses' home, and the number of beds at the High-street Hospital is also to be increased.—The Manchester and Salford Hospital for Skin Diseases treated 12,230 out-patients and 102 in-patients. The ordinary income was £9227 and the expenditure £9150. A new wing with a department for artificial sunlight, accommodation for nurses, and seven more beds was begun in September. The cost will be £11,500, of which £11,225 has been received. Local authorities have extended travelling facilities to allow patients to take advantage of the hospital's treatment.

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## NORTHUMBRIAN SURGERY.

INTERNATIONAL congresses have done much to standardise the teaching and practice of scientific surgery throughout the civilised world; it is these meetings with the subsequent reports of their proceedings which have brought it about that there is hardly a hospital in any country in which—for example—the antiseptic treatment of wounds, the procedure for the radical cure of hernia, and the technique for the production of anæsthesia are not substantially the same even while varying in detail. But the injuries to which the people of an area are subject differ, and so accordingly do the diseases with which surgery has to deal, and the views and the ingenuity shown by the local surgeons maintain a certain local flavour, sufficient to render a visit to any one surgical school stimulating and useful to members of another. The Royal Victoria Infirmary at Newcastle or the Hospital—it goes locally by either name—serves an area with over a million inhabitants, of whom a large proportion are engaged directly or indirectly in shipbuilding or coal-mining. Open-handed to a degree when times are good, the working population of what may be termed for convenience *Northumbria*, now contributes far the larger proportion of the cost of maintaining their beautiful hospital and have acquired with good reason a ruling voice in its discipline and organisation. This fact carries with it an interesting consequence, for local patriotism appears to forbid the miner to elect any but his geographical kith and kin to the service of the hospital, and, as a result, the teaching staff in surgery, as well as the demonstrators and assistants in clinical surgery, hold, with slight exception, surgical degrees of the University of Durham and have been born and brought up in its neighbourhood. Mr. Rutherford Morison, Emeritus professor, was born at Hutton Henry, Co. Durham; Prof. Brunton Angus is a native of Newcastle; and the lecturer on surgery, Mr. G. Grey Turner, was brought up in the neighbouring town of North Shields. And these Northumbrians have had to deal with, and are dealing with, conditions which give a particular direction to their science and their practice. This is not to say that they are insular or parochial, for as is well known they make a point of visiting other centres, but they develop their particular work in directions that are locally indicated.

The shortage of beds, serious elsewhere in the country, is especially severe in Newcastle, and as a consequence it is the practice of the infirmary to give priority to the more acute and urgent surgical cases, cancer cases, and industrial injuries, where alleviation or cure means restoring the wage-earner. Straitened finance has so far hindered the incorporation of the beds in the adjoining pensions hospital, although, should nothing intervene to alter plans, this splendid additional accommodation will be available in two years and will supplement the present beds by another thousand. While among the patients for whom space is always found are those who present operable tumours, fractures naturally play a large part in the hospital experience, for injuries in mines and shipbuilding are frequently severe, so it is of real interest to note that the practice of the infirmary in regard to compound fractures has assumed a routine character slightly different from that in force elsewhere. The wound is excised as soon as possible, washed with 1 in 20 carbolic, dried with methylated spirit, and rubbed with Rutherford Morison's bipp, which is also applied to the ends of the bone before doing what is necessary in the way of fixation. For simple fractures it is not unusual to lash round the bone with No. 3 chromicised catgut, and experience is in favour of the introduction of an intramedullary peg of beef bone. Some of the surgeons prefer to use the bismuth paste made with 1 in 20 carbolic rather than paraffin, which is less easy to apply evenly to all parts of the surface. Derangements of the knee-joint are also common in a community whose male youth when not at their strenuous work are largely addicted to football, while the miner is obliged to work in peculiar positions often far away from the possibility of help. Thus a radical method of dealing with a torn internal cartilage has been found necessary at Newcastle. It is Mr. Turner's usual practice to make a transverse incision on the inner side of the knee. Through this the cartilage is cut from its anterior and lateral attachments; it is then dislocated forwards and cut through as far back as possible. Only a small portion then remains, and this slips back between the condyles, where its presence is harmless. Men are refused work in the mines for recurrent synovitis, but not after a successful radical operation has been performed—a most practical testimonial to the method which has been evolved. Abdominal emergencies play a large part in the miner's life, and here the pressure on the infirmary has grown steadily in recent days, beds tending to become filled on account of earlier diagnosis by local practitioners—indeed, Mr. Turner has frankly admitted sending away cases diagnosed outside the hospital as appendicitis, which cases had returned later with full-blown symptoms. Exposure and changes of temperature result in the prevalence, not alone among the working class, of fibrositis in various forms, and Prof. Angus has given a particularly interesting demonstration of Dupuytren's contraction for which he had performed Tagliacotian grafting with results still remaining good after three to five years.

The practitioners of the district are welcomed to the teaching of the infirmary, their readiness to overfill the institution, however embarrassing, being counted to them for righteousness. Teaching in clinical surgery has developed largely but independently on lines comparable to those of Theodor Kocher at Berne. In the intervals of operating Mr. Turner, for example, passes in review the various aspects of the case in hand by using a hanging ground-glass screen in the ante-room of the theatre on which are projected pictures from a lantern in the corridor outside. A recent clinical lecture on the treatment of a deranged knee-joint, which lasted four minutes, began with portraits of Lister and William Hey, with a picture of the latter's saw; then followed a remark or two on asepsis as applied to the knee-joint; the anatomy of the cartilages was reproduced from Gray's text-book, and diagrams were given of the common types of tear in the cartilage. A diagram showed the incisions and the position of the internal lateral ligament and now the interrupted sutures in the capsule allowed of seepage of fluid and avoidance of pain; a schedule of the after-history of a series of 24 cases operated upon 9 to 13 years previously brought the lecture to a conclusion, with a portrait of Sir Robert Jones as a pioneer in this branch of practice. At a recent demonstration to visiting surgeons other subjects of interest brought forward included a series of cases of cleft palate which had been operated upon at various ages and which illustrated the facility with which the normal speech is acquired in direct proportion to the early restoration of the soft palate; several cases of transplantation of ureters into the sigmoid colon for various irremediable conditions of the bladder in which rectal continence of fluid was gradually acquired; and a case of complete facial paralysis with suture of the spinal accessory nerve into the facial nerve four years after its occlusion. Eleven years after the operation the facial muscles were mobile with little associated movement, and the condition was still improving. Mr. Turner believes strongly in making an abdominal incision over the site of the lesion to be dealt with, rather than in using the median or paramedian incision commonly used by other surgeons. Several cases were shown to illustrate this, none of the patients having any sign of post-operative ventral hernia.

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H.R.H. the Princess Royal has accepted the presidency of the Queen Alexandra League, founded by the late Queen to support the Lord Mayor Treloar Cripples' Hospital and College.

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# RECENT CANCER INVESTIGATION:
## STATISTICAL AND CLINICAL.

THE last few weeks have seen the publication of a number of important reports dealing with cancer statistics. Of these, the two volumes published by an International Committee appointed by the Health Organisation of the League of Nations,[1] are most important, both from their authorship and the interest and magnitude of the problem treated. The problem was presented by the mortality statistics of England and Wales, Holland and Italy. These three countries were selected for two reasons by an authoritative committee, under the chairmanship of Sir George Buchanan, appointed by the Health Organisation. Their official mortality statistics are held to reach an equal standard of accuracy, but reveal a considerable difference in the mortality of cancer of the breast and uterus. This is very much higher in England and Wales than either in Holland or Italy. A detailed inquiry seemed, therefore, likely to yield information on some of the factors which determine the incidence of cancer in these organs. The problem is complicated by the fact that the total mortality for women from cancer of all organs is not the same in these three countries. It is lower in Italy than in Holland or England and Wales. In England, Wales, and Holland the total mortality is nearly the same. This means, of course, that the lower incidence of cancer of the breast and uterus in Holland is compensated for by a higher incidence in other organs, and this compensating increase falls mainly on the digestive tract. Cancer of the digestive tract is much more frequent in Dutch women than in English women. Italian women do not suffer from this compensating increase in cancer of the digestive tract. They have, however, a higher incidence of cancer of the uterus than Dutch women, but this does not apply to England and Wales, where cancer of the uterus is more frequent than in Italy. The statistical inquiry into these problems has been entrusted to a subcommittee of statisticians composed of Dr. Major Greenwood and Dr. Janet Lane-Claypon (London), Prof. Deelman (Groningen), Prof. Methorst (The Hague), Prof. Niceforo (Naples), and Dr. Tomaneck and Prof. Pittard (Geneva). The composition of the subcommittee is in itself a guarantee of the soundness of the work done which is presented in the two volumes in an exceptionally clear and succinct manner.

### *Mortality from Cancer of the Breast and Uterus.*

The first volume is the report of the subcommittee of statisticians. The second volume contains a number of reports by Sir George Buchanan, Dr. A. Lutrario, Dr. N. M. J. Jitta, and Prof. M. T. Deelman on the results of clinical inquiries into the differences of the mortality from breast cancer in the three countries. The report of Sir George Buchanan is based on the investigations of Dr. Janet Lane-Claypon which have been published in a separate report issued by the Ministry of Health.[2] Dr. Lane-Claypon has collected by means of a questionnaire detailed material concerning the life-history of 508 cases of cancer of the breast and of 509 control cases who did not suffer from cancer. The inquiry has been placed, therefore, on a very wide basis. It is probably the most extensive statistical investigation on cancer which has as yet been undertaken, and both as regards the organisation and the care and labour involved in carrying it out reflects the greatest credit on those responsible for it. The material presented is very great and does not lend itself to brief summary.

Clinically it has long been known that cancer of the breast is less frequent in women who have nursed their children than in those who have not done so. This clinical experience is confirmed by this report. It holds good for all the three countries. But the report does not corroborate another clinical dictum concerning cancer of the uterus. Clinicians have held that childbearing predisposes to cancer of the cervix. The statisticians, however, conclude from their material that "the higher incidence of cancer of the uterus upon married women is a consequence of the immediate effects of a single parturition" by which is meant presumably the first childbirth, and that women who have borne many children are less, rather than more, liable to cancer of the uterus in comparison with married women who have borne few children. The statistical data do not allow of a distinction being made between cancer of the cervix and cancer of the body of the uterus. Although this is pointed out in the report as a possible objection, the statistical differences are too definite to be invalidated by it.

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[1] League of Nations Health Organisation, Subcommittee on Cancer. Vol. I.: Report on the Demographic Investigations in Certain Selected Countries. Vol. II.: Report on the Results of Certain Clinical Inquiries relating to Differences of Cancer Mortality in Certain Selected Countries.

[2] A Further Report on Cancer of the Breast, with special reference to its Associated Antecedent Condition. 1926. London: H.M. Stationery Office. 3s. 6d.

Since, then, the incidence of cancer of the breast and uterus is to a certain degree affected by the physiological functions of these organs, it was to be expected that one or more of the various factors connected with the reproductive life of women might account for the great difference in the incidence of cancer of these organs in the three different countries. But this expectation was not fulfilled by the statistical inquiry. None of the numerous factors, including surgical treatment, which were made the subject of investigation, was found to be responsible for the difference in the incidence of cancer of the breast in the three countries. In place of a solution, cancer, with characteristic elusiveness, presents the following paradox. One statistical finding is that women who nurse their children are less liable to cancer of the breast. Another is that the percentage of women who do not nurse their children is higher in Holland than in England. One would expect, therefore, to find a higher incidence of cancer of the breast among Dutch women than among English women. But, as already stated, the reverse is the case.

Another statistical puzzle is provided by the Italian data on cancer of the uterus. Though cancer of the breast is less frequent in Italy than in either Holland or England, Italian women are more liable to cancer of the uterus than Dutch women, but less liable than English women.

### *Local Predisposing Conditions.*

Though the inquiry has not solved the problem which it set out to investigate, it would be a mistake to write down this great effort as a failure. To have established that those factors which are particularly concerned with the functional activity of the breast and uterus, and which are known to affect the liability of these organs to cancer, do not account for the great national differences in the incidence of cancer of those organs is in itself a positive achievement. Its great value lies in the definite elimination of these factors, so that we must now look elsewhere.

Dr. Lane-Claypon's report deals very fully with the local conditions which predispose to cancer of the mamma. Acute suppurative mastitis was found not to be a contributory cause to the later appearance of cancer of the breast, but evidence of a previous injury, chronic non-suppurative mastitis, and hyperplasia occurred more frequently in the history of the cancer series than in the control series. In a detailed discussion on the importance of hyperplastic changes in the breast as antecedents of cancer, Dr. Lane-Claypon accepts the teaching of Sir Lenthal Cheatle, who has recently published further observations confirming his previous work in a very instructive paper.[3] By a study of sections of the whole mamma he has been able to show that the various hyperplastic changes which he has observed in the human breast and which, as he holds, find their termination in cancer are identical in time and sequence with the changes which can be induced experimentally in the skin of mice by tarring and which are known to end in cancer. The numerous excellent figures which accompany the paper lend strong support to his arguments.

### *Cancer in New Zealand.*

Another report,[4] which is geographically circumscribed, derives its chief interest from this very limitation. New Zealand offers certain exceptional features for the statistical study of cancer. It is a self-contained country which has advanced during the past 50 years from a community of pioneers to a community enjoying all the advantages of civilisation without its disadvantages. We mean that the people are prosperous, possess all facilities of education and communication, and have an efficient and up-to-date medical service, while the excessive urbanisation which characterises the civilisation of Western Europe is absent. The people are of Anglo-Saxon descent without much admixture by immigration, so that by a comparison with the incidence of cancer in this country it is possible to test whether the difference in the climatic and social conditions has affected the incidence of cancer. The report shows that the incidence of cancer in New Zealand is exactly the same as in this country.

During the last 50 years there has been a very rapid increase in the recorded death-rate from cancer in New Zealand. The increase is mainly an apparent one, as Mr. Butcher points out in an admirable summary at the end of the report, due to the greater efficiency of the medical service, which in New Zealand, as in all civilised countries, is gradually bringing, by better diagnosis and registration, the recorded death-rate from cancer more and more up to the level of the unknown actual death-rate from cancer. We find accordingly the most rapid increase during the earlier years 1875 to 1900, while during the last 15 years the death-rate has remained nearly on the same level. The increase affects men more than women, because in men the organs chiefly liable to cancer are less accessible than in women, so that they escape diagnosis more easily.

Perhaps the most interesting data of this report are those referring to cancer among the Maoris. The presence of a native population living under the same conditons as Europeans, subject to the same system of registration as regards birth and death, and having the same opportunities for medical treatment, offers exceptional facilities for the study of the vexed problem of the incidence of cancer in native races. The statistics submitted give for Maoris a crude death-rate of only 2·60 per annum per 100,000 living as against a corresponding rate of 8·80 for the rest of the population. Mr. Butcher believes that, for various reasons, the rate for the Maoris is probably understated, but "there is sufficient evidence on which to conclude that cancer is much rarer among the Maoris than among Europeans." If this difference should be confirmed by a careful and detailed investigation into the incidence of cancer among the Maoris, it would afford clear proof of the existence of racial differences in the susceptibility to cancer. There is here a unique opportunity to gain important information on this aspect of the cancer problem.

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[3] Brit. Jour. of Surgery, 1926, xiii., 509.

[4] J. W. Butcher: Cancer in New Zealand. A Statistical Study. Published in the New Zealand Official Year Book, 1926.

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HOSPITAL BEDS FROM TINFOIL.—The Committee of the Tinfoil Fund of the Ancient Order of Druids reports that last year £1228 was realised by the sale of "silver paper," making a total of £6610 since the fund was started in 1912. It is intended to endow three hospital beds this year, in addition to making small money grants to ten hospitals.

WALTHAMSTOW HOSPITAL.—The Lord Mayor of London, Sir William Pryke, on March 11th laid the foundation-stone of the Thomas Worton Ward and the Leyton and Leytonstone War Memorial Ward at the Walthamstow, Wanstead, and Leyton Children's and General Hospital. The two new wards will each contain 16 beds, and, in addition, on each of the two floors there will be four single wards for paying patients. Accommodation will also be provided for two resident house surgeons. The new additions will cost about £10,000.

## MOTORING NOTES.

### *Flexible Glass.*

ON Jan. 19th the *Motor* announced the invention of flexible glass, and in a later issue of the same journal some interesting facts about the discovery were disclosed. This "organic" glass is said to be a condensation product of formaldehyde and urea, similar to the imitation tortoise-shell of formaldehyde and phenol; many investigators had been trying to make it before 1920, when Drs. Fritz Pollak and Kurt Ripper, of Vienna, commenced their research work. They have overcome some formidable difficulties, especially in finding a way to keep flaws out of the larger pieces, but they now claim to have perfected a simple and sure method of making products "having the transparency of glass, resilient, insoluble to the highest degree, insensitive to differences in temperature, and adapted to be worked." The new glass is colourless, transparent, strong, and light; it is reasonably hard and so flexible that it will not splinter but fractures harmlessly. It is transparent to ultra-violet rays, can be coloured and etched, and its refractive index can be varied within certain limits. It requires little imagination to foresee some of the uses to which tough flexible glass could be put, not only in motor-car body-work but also in parts like petrol- and oil-tanks, where transparency would be extremely useful. It would minimise many of the risks of laboratory work and would take a heavy load off the mind of the practitioner, who often has to transport expensive and sometimes destructive fluids in a handbag. The inventors hope also to make lenses for giant telescopes far more cheaply than is possible with ordinary glass. We understand that arrangements have been made to market the glass in Great Britain, the interests of the proprietors in this country being represented by Mr. J. C. Vredenburg, 2–3, Charterhouse-square, London, E.C. 1, but we understand that no specimens of the glass are as yet available for inspection.

### *Current Prices of Second-hand Cars.*

Although everyone would sooner have a new car, not all can afford it, for the value of nearly all cars drops 25 per cent. in the first year. The price is a big one to pay for a depreciation in appearance that is often hardly noticeable, especially considering that when a good car is a year old it generally runs better than it did when new. It is therefore often worth while to consider buying a year-old car. The second-hand market is lower this year than it has been for a long time, and there are many firms, both in London and the provinces, who can be trusted to give what they advertise. Few good English cars lose mechanical condition after a year or less, but when examining a second-hand car it is as well to take a competent adviser to examine the state of the tyres and batteries. The Automobile Association assist their members in this way for a small fee. The doctor had better not buy anything sold before 1925 unless it is one of the few first-class makes.

Examples of current prices for last year's cars are: Austin 7 £105; Morris-Cowley two-seater £110, coupé £145; Clyno 11 occasional-four £125, four-seater £130; Standard 11·4 two-seater £125, saloon £180; Ariel 10 two-seater £145; Wolseley 11 two-seater £155, four-seater £175; Morris-Oxford four-seater £175, saloon £265; Bean 12 four-seater £220; Austin 12 four-seater with four-wheel brakes £265; Crossley 14 two-seater with four-wheel brakes £285; Alvis 12–50 four-seater £350; Bentley four-seater £795. A 1924 Daimler 16 saloon is advertised for £425 and a 1923 Bentley for £575.

These examples show an average of about 35 per cent. under the present new prices. Many dealers sell shop-soiled unused cars at 15 per cent. under their catalogue price. Intending purchasers should be quick about it, as the market rises with the spring demand.

### *The Problem of Dazzle.*

By inventing the electric self-starter the electrical engineers made motoring very much more comfortable in one way, but very much less in another, for the dazzle problem is undoubtedly a direct result of their ingenuity. A self-starter means a 12-volt battery, and a 12-volt battery is an irresistible temptation to makers to fit powerful headlights. If these were as efficient as the starter no harm would be done, but until the problem became acute it never occurred to any designer that something more was required from a lamp than just a more or less parallel beam. The ordinary headlight, as any night-driver can testify, sprays its light all over the road as well as directly in front of the car, and to meet a string of cars at night is one of the most terrifying experiences of motoring. The driver is completely blinded for several seconds, during which he may either run his car off the road or overtake and collide with an ill-lighted cart or unlighted bicycle. In self-defence he may hide behind a piece of tinted glass on the off-side of his screen or goggles, a shield of doubtful value. He can fit a spot-light on his near dumb-iron, set to light up the side of the road; this is an expensive fitting and does not protect him against obstacles on the road itself. What he does too often is to have as bright headlights as he can get and keep them on, and this, although it preserves him most of his view of the road, completes the vicious circle of the dazzle problem. Most motorists are considerate and would willingly mitigate their dazzle if they could do so safely, but so far hardly anyone has shown them how to. Dimming is appreciated by meeting traffic, but the dimmer runs a grave risk of failing to see an obstruction; it is therefore only a palliative. Besides this he is often too occupied to have any attention to spare for a dimming-switch. The problem of fog is allied to that of dazzle, and indeed a solution of one would solve the other. Tinted bulbs are of some use, but they again are only a palliative, for they cut off much light and so waste a great deal of current. The only remedy is to use a lamp which will throw a flat-topped beam, so that the light will not be reflected back from the fog to the driver's eyes.

Similarly, to avoid dazzle it is necessary to keep the beam down, so that its upper rays shall be below the eyes of other users of the road. The dipping head-lamp partly secures this result, especially if it is mounted high, but most makers fit their lamps too low. Even if the lamp is mounted in the right place, which should be just below the driver's line of sight, the ordinary head-lamp throws so much light above the main beam that it cannot be dipped far enough to provide safety for both parties. Besides this the process of dipping occupies one hand at a critical time. A lamp especially designed to throw a flat-topped beam is a better solution. The beam need not be a very narrow one, as if the top of the beam is below eye-level it does not matter to people in front where the light goes. At least one lamp on the market (the *Strange*) supplies such a beam. The top half of its reflector has a smaller radius than the lower half, and its screen has vertical ribs. Above four feet its beam is absolutely cut off, and one can walk straight up to it and stare at it without being dazzled. It gives a good driving beam, with diffused light at both sides and overhead. A French model is a lamp called the *Parallux*, in which the beam is held down by horizontal strips of yellow tape. It is said to be very good, but is not yet on the English market. Both these lamps cost no more than the ordinary first-class head-lamps. In the absence of a special device the least every car driver can do is to see that his own lamps are in proper focus and, if possible, that they are not pointing upwards. It is easy enough to focus head-lamps, and bad focus is responsible for a good deal of dazzle.

### *The New Clyno "13."*

The doctor wanting a low-priced car should examine the new 13 h.p. model made by Messrs. Clyno. For the price, £260, it is very good value. The steel body is well built, the cushions are comfortable, and covered with real leather. The side screens are rigid and neat in their thin steel frames, and a rear screen is part of the standard equipment. The floors have black druggets, besides a rubber covering. On the dashboard are a speedometer, clock, lamp, and "strangler" for starting; throttle and ignition controls are fitted on the steering-wheel and the gear and brake levers are on the right-hand side. The engine is not really a 13 but an 11 9, for its capacity is only 1500 c.cm. It is well designed, except that the magneto and carburettor are rather inaccessible; it would be an improvement to change the magneto and generator about, for the latter is mounted high up on the off-side and is very easy to get at. The brake adjustments are placed conveniently, and the tool-kit is adequate. The chassis is lubricated with a grease-gun in accordance with the latest practice. The driving position is comfortable, and the front seat will slide back far enough to give long legs plenty of room, but only, of course, at the expense of any passengers behind. Possibly a very tall driver might find that the gear-driven screen-wiper and the top rail of the screen got rather awkwardly in his line of sight, but a lesser man would drive comfortably enough. The hand-brake lever is a shade too near the side of the body, but might perhaps be bent inwards a little. The gear lever has a long travel and gives a comfortable and quiet change.

The new Clyno is a nice car to drive, as the engine is quiet and well behaved, the steering is extremely delicate, and the four-wheel brakes will work gently as well as pull the car up abruptly when really necessary.

The gear-box has only three speeds, and performance on middle is a little disappointing, this gear being far too low. It seems to be impracticable to balance mass-production engines so accurately that they will spin up to the top of their power-curve without complaining. The remedy is either to have four speeds with a fairly high third—and this is expensive—or to have an engine so large that it will take nearly everything on top, like an American car. The Clyno engine is not big enough for this. It is, however, an excellent car of its class, and may well become popular among medical men.

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# BERLIN.

(FROM OUR OWN CORRESPONDENT.)

### *Combating Venereal Diseases in Russia.*

AT a joint meeting of several Berlin medical societies Prof. Bronner, head of the venerological department of the Russian Commissariat for Health, recently described the campaign against venereal disease in Russia. In Moscow, he said, there is a central institute for the training of medical men as specialists. The course lasts a year and 600 medical men have already had instruction. At first a course of three to six months was the rule, but this proved too short. The times of attendance are early in the morning and late in the evening, so that workmen may have time to visit the institute without losing time at their work. The law allows only qualified medical men to attend patients, and quackery is nearly extinct in present-day Russia. Great stress is laid on the education of the public in hygiene. Persons suffering from venereal disease are advised to undergo treatment, but there is no regulation compelling them to do so. In the provinces there are similar institutes to the one at Moscow, and arrangements have been made to supply information to correspondents who lack the time to come themselves. Prostitution, says Prof Bronner, almost disappeared during the time when working was compulsory for everybody, but after the new economic policy was adopted prostitution began again, and is tolerated because the authorities consider that as long as they are unable to procure work for everyone, it would be wrong to hinder women from earning their living in any way they like. An energetic war is, however, being waged against brothels, and infected prostitutes are conveyed into a home called a prophylacterium, where they find not only medical attendance but also food and work. To inquire into the state of things in the country at large commissions of medical men with assistants have been sent out, and it has been ascertained that in some villages up to 45 per cent. of the population have venereal disease. In about 90 per cent. of these the infection is extragenital, and is due to the primitive housing accommodation and the deficient hygiene of the rural population. On an average in the provinces 1·5 to 4 per cent. suffer from syphilis, but in regions like Turkestan, with a native population, the percentage rises to 15 or 25, whilst amongst the Mongols of the Baikal provinces it is as high as 45. The reduction in the population of these tribes is ascribed in large measure to their being affected with venereal disease in a severe form. Prof. Bronner states that, whilst the cases of chancre are increasing, secondary syphilis, on the other hand, is diminishing, obviously owing to earlier treatment than formerly. In 1920 the amount of salvarsan produced in the Russian chemical factories was 65 kg . in 1925 the output had risen to 1800 kg., besides 100 kg. imported from abroad. Before it is dispensed to the public the drug is submitted to a thorough chemical and biological test. Prof. J. Jadassohn, the President of the Association for the Prevention of Venereal Diseases, stated at the meeting that in his visit to Russia he had gained a very good impression of the work done by the Russian Government. In Russia more than elsewhere the prevalence of syphilis was due to failure of personal hygiene. Similar conditions had existed in Germany during the war and shortly afterwards.

### *The late Prof. Israel.*

The death in Berlin on Feb. 20th of Prof. James Israel removes one of the most celebrated of German surgeons Born in 1848 in Berlin, he studied in the university there, and after qualification continued his medical training at Vienna, London, and Edinburgh. Returning to Berlin, he became assistant at the Jewish Hospital under Langenbeck, the surgeon, and Traube, the physician, and when fully equipped by all his experience was appointed chief surgeon to the Jewish Hospital, where he remained until his retirement in 1918. It was Israel who first described actinomycosis in men as early as 1878; former observers had not clearly understood its nature. His researches covered many branches of surgery, but his principal work concerned the kidneys, and in 1901 he published his standard treatise on renal disease from a surgical point of view. Only two years before his death he issued, in collaboration with his son, a new work on the diseases of the urogenital system. Amongst other things, he showed that removal of one kidney may prevent the spread of the disease to other organs. Prof. Israel was not a university lecturer, but trained a large number of assistants, of whom his successor at the Jewish Hospital, the late Prof. Karewski, may be mentioned as one. He had a very large international practice, and was frequently called into consultations abroad, on one occasion being called to St. Petersburg to see the Czarovitch, who was suffering from hæmaturia due to hæmophilia. He enjoyed special renown among the Jews of the East, who before the war used to flock to consult him, not only on surgical matters, but for many bodily and psychical ailments. He was a man of high culture and very representative. Although 78 years of age, he was engaged in practice until a few weeks before he died.

### *Financial Difficulties of German Universities.*

The number of German universities is undoubtedly much too large. Apart from the older ones, whose foundation partly dates back to the Middle Ages, there is a number of others recently established. Shortly before the war Frankfort was made the seat of a university which is not supported, like the others, entirely by the State, but largely out of municipal funds and by private endowment by the inhabitants of that once wealthy city. Even since the war new universities have been opened in Cologne and Hamburg, whilst the old university of Münster has been enlarged by the addition of a medical faculty. Düsseldorf has become the seat of an academy for post-graduate study, and it is intended to make this also into a university. It is characteristic that the new foundations are not, like the older ones, situated in medium-sized and small towns, but in large cities. Several of the smaller universities are said to be in financial difficulties, for the State cannot afford to give them adequate grants. This applies to the one at Giessen in Hesse, where the pharmaceutical institute has already been closed and amalgamated with a technical college at Darmstadt. It has been suggested, indeed, that the University of Giessen should be closed altogether, for others abound in the neighbourhood. The German universities, of course, vary greatly in size. Berlin is the largest, with 10,000 students; Munich has 7068; Cologne, 4609; Leipzig, 4400; Breslau, 4288; Bonn, 3209; Freiburg, 3020; Frankfort, 2635; Tübingen, 2533; Munster, 2531; Heidelberg, 2516; Göttingen, 2593; Halle, 2301; Marburg, 2156; Wurzburg, 2124; Hamburg, 2075; Jena, 2015; Königsberg, 1643; Kiel, 1601; Giessen, 1308; Erlangen, 1292; Greifswald, 917; and Rostock, 784. In those smaller towns where the economic prosperity of the population mainly depends on the undergraduates, the idea of abolishing the universities has created some anxiety, but so far the discussion has only been purely theoretical.

## BUCHAREST.

(FROM OUR OWN CORRESPONDENT.)

### *The Shortcomings of Private Practice.*

MEDICAL ethics are in the limelight just now. Allegations against a surgeon who refused to visit a patient as soon as he was called have recently been the pretext for a vicious outburst against doctors in a section of the daily press. Other journals have taken up the cudgels on behalf of the profession, against its gossiping detractors, but a certain amount of public dissatisfaction is evident. This makes a recent address given by Dr. János Sándor all the more topical in its interest. His subject was the cessation of private practice.

A change in the relations of doctors to the public and to each other, is, he considers, imminent. If the doctor is to be at the disposal of every sick man, giving to everyone the same unselfish service and the same knowledge and care, then the whole system of private practice must be abolished, and the sanitary service must be put into the hands of the State, which will supply its citizens with physicians, drugs, and surgical treatment, just as it supplies them with the machinery of the law. It may be argued that this would deprive patients of the right to choose their own medical advisers, said Dr. Sándor, but already most of the population have been deprived of this right. The peasants in the villages have only one doctor at their disposal; the workers in towns must attend those appointed by their assurance offices. As for sick clubs, Dr. Sándor remarked, the fees of the club doctor are so small that no physician can regard appointment to a club as his main vocation, and he is forced to put his heart mainly into his private practice—a fact very well known to his patients. It is notorious that the private doctor examines his cases, as a rule, much more conscientiously than does the badly paid club doctor. But if there were no paying and non-paying patients this abuse would cease.

It would not take long, Dr. Sándor considers, for people to get used to the fact that they could not choose their own doctor. If one of our forefathers of the eighteenth century were to rise from his grave he would undoubtedly consider it an unheard-of interference with his rights when he found that he could not build a house on his own ground without conforming to the municipal regulations about site, material, and construction. He would think it intolerable that he should not be allowed to drive his horses along the street at more than five miles an hour; that he must go to bed before 1 o'clock in the morning; that he should have to open and close his shop, fix the prices of his goods, cleanse his sidewalk, vaccinate his children, and do a hundred and one other things as the law prescribes. Though used to the abuses of absolutism in government, the visitor from the past would consider all this interference with his rights utterly preposterous, and would hurriedly return to the grave whence he came. Yet we consider these regulations reasonable; in the same way our descendants will learn to regard a nationalised health service as something natural. "We doctors," continued Dr. Sándor, "know perfectly well that the public is mainly incapable of using its right of free choice; as a rule it cannot accurately judge of the capabilities, knowledge, and conscientiousness of a doctor, and often it prefers the well-advertised man who talks a lot to the quiet man who is efficient. Experience shows that it is not the best doctor that has the biggest practice."

Public institutions maintained by the State are, he admitted, to a certain extent unpopular, and do not always deal uniformly and fairly with every citizen. Nevertheless this uniformity in treatment would in course of time become the tradition of a State medical service. Doctors, moreover, would be relieved of the cares of gaining a livelihood, for obviously the State would have to give them adequate remuneration and provide suitable pensions for old age or sickness. In some countries, he added, the medical service is already nationalised, to the complete satisfaction of both doctors and public.

The advantages of nationalisation would be many. "My idea," said Dr. Sándor, "is that every physician should have his own district with really well-equipped dispensaries for ambulant patients. Specialists and consultants could be summoned by the doctor in attendance or, in serious cases, by the patient himself. Night service would be organised in towns and cities." As things are at present the practitioner spends most of his time wearing out health, clothes, and boots by attending patients at opposite ends of a large district. If a postmaster handed a postman a bunch of unsorted letters to deliver in all parts of a big city he would be thought crazy; everyone finds it natural that a postman should have his designated streets. Why, then, should doctors alone have to fight against a lack of system in their work? Reorganisation would not benefit the doctor only; it would enable his patients to get him quicker in emergencies. Fewer doctors would be needed and the present regional disproportion could be adjusted. (In different parts of Roumania the number of doctors per 100,000 of inhabitants varies from 117 to 18.) The unfortunate economic situation in continental countries at present often prevents people incurring the expense of calling in a doctor till a disease is well advanced. With free medical treatment it would be otherwise.

It may be objected, said Dr. Sándor in conclusion, that the removal of personal profit as a motive and the cessation of competition would make for poorer work. Yet thousands of medical men spend years and years in clinics, hospitals, and laboratories, working hard for nominal salaries, and sacrificing their lives to science or charity. A perfect State system does not exclude the possibility of rising according to merit. Selection of doctors should begin in the university, and only those should enter the service who are led to it by a love of the medical vocation and have the needful moral and physical capacity. If doctors were not created haphazard there would be fewer problems in medical ethics. "It is my firm conviction," said Dr. Sándor, "that within a short time the whole of mankind will hold it most natural that just as every passer by can avail himself of the pavement and lighting of the street, so also everyone should have an equal right to free medical attention."

## PARIS.

(FROM OUR OWN CORRESPONDENT.)

### *Increase of Syphilis.*

Dr. Jeanselme, professor of syphilography in the Paris Faculty of Medicine, has recently remarked that the number of cases of fresh syphilitic infection presenting themselves at the Hôpital St. Louis has definitely increased during the past year. His colleagues have made the same observation, and it seems that the total number of patients with recent syphilis treated in the six dispensaries of the hospital has risen from 1055 in 1924 to 2445 in 1925—that is to say, there has been an increase of 20 per cent. The Hôpital St. Louis draws its patients from every quarter of the capital and its outskirts, and it is reasonable to conclude that syphilis is making definite headway at present amongst the working classes. A provincial inquiry suggests that this state of affairs is true of the rest of France also. Two reasons are put forward to explain the recrudescence. First of all there is the invasion of foreign immigrants. In one of the big manufacturing works on the outskirts of Paris there are over 10,000 foreigners, besides 2000 natives from the colonies, amongst the 30,000 employees—that is, nearly 30 per cent. of the total number are not French. Of 250 syphilitic patients in the Hôpital St. Louis, about one-fifth are foreigners or colonial natives; and really the proportion is higher than this suggests, because the males amongst them account for over 31 per cent. of the inmates of the male wards. Again, amongst 451 cases of recent syphilis treated at the dispensary in 1925, there were 260 French, 140 foreigners, and 51 North Africans. And the proportion of foreign patients is just as high in the other big industrial centres and ports as it is in Paris.

The second cause of the recrudescence of syphilis in France is undoubtedly the general use of bismuth just now, not only as a secondary treatment, but as the means of attack against the disease. This is due to the discredit into which the intravenous use of arsenobenzol has unfortunately and unjustifiably fallen.

### *Physicians' Compensation.*

An interesting case has just been decided by the Paris courts. A physician, summoned in an emergency by a friend of the patient, later presented a bill which the patient's family considered too large. On the refusal of the family to pay more than one-third of it, the physician attacked the friend who had summoned him. The courts held that to do so would only have been justifiable if the family had refused to make any payment whatever. As they had not done this the claim made against the intermediary was thrown out of court, and it was decided that the physician must still negotiate with the family.

### *Mechanical Milking.*

Dr. Henri de Rothschild, who for 18 months has been trying mechanical milking amongst some 80 dairy cows at his establishment at Vaux-de-Cernay, has recently given the Académie de Médecine an account of his experience. From the practical point of view there is economy of both time and labour, and neither filtering nor pasteurisation is needed after milking. The milk obtained mechanically keeps longer, especially in summer, and can be taken over long distances without there being any danger of it turning. From the scientific standpoint it cannot be regarded, strictly speaking, as aseptic, as has sometimes been claimed, and in spite of the most elaborate precautions it always contains a large number of organisms. But whereas a sample obtained in the usual way by hand and collected in ordinary receptacles washed out in cold water has about 270,000 colonies per c cm. after four days' incubation at 37° C., a sample from the machine shows not more than 30-70,000. The difference is considerable, and even if this milk cannot be called aseptic, it can at least be called clean.

### *Blood Transfusion in Infants.*

Dr. Guéniot, who has been studying blood transfusion as a treatment of debility in the new-born and in premature births, has found that the method is not without difficulty, and should be adopted only in cases not responding to the usual methods of care and feeding.

It has been pointed out that many laboratories in France are really incompetent to make the more complicated and delicate biological tests often required. The Académie de Médecine is heartily supporting a movement to institute rigid supervision of laboratories advertising publicly.

At the Faculté de Médecine Prof. Roussy has just closed a series of impressive conferences on cancer. The directors of cancer service at Marseilles and at the Curie Institute of Indo China have just been added to the committee appointed by the French Government in 1922 for coördinating methods of study and treatment.

Easter vacation courses from March 29th to April 10th are offered at the Faculté de Médecine. These include a course in criminology, to be given at the Palais de Justice, obstetrical courses, and a revision course on laboratory diagnosis at the Hôtel Dieu. A valuable course on occupational accidents is being continued by Balthazard, Lhermitte, Claude, Dervieux, Duvoir, Laignel-Lavastine, Terrien, and others. All sections of the subject are thus ably covered.

Prof. Thiery, well known for his surgical work in different hospitals at Paris, was on March 11th presented with a medal by his pupils, who wished thus to express their appreciation of his work and teaching.

## UNITED STATES OF AMERICA.

(FROM AN OCCASIONAL CORRESPONDENT.)

### *The Control of Narcotics.*

THE federal control of narcotic drugs is exercised through the Harrison Act. The constitutional validity of this Act was challenged in 1919 and was upheld in the Supreme Court by a majority of only 5 to 4. A strong hint has now, however, been dropped by the Court that its decision might be reversed if the subject again came up for review. To understand the constitutional position it should be realised that the Federal Government can exercise only those powers which are specifically granted to it under the constitution. In the absence of definite instructions the right to legislate is presumed to lie with the State Government—a presumption exactly opposite to that which obtains under the Canadian constitution. The fathers who drew up the constitution of the United States foresaw a good deal, but some things they overlooked, and among them the growth of health legislation. There is no provision for control of health by the Federal Government. In passing laws under these limitations Congress has shown from time to time a good deal of ingenuity. Not having power to protect certain migratory birds, for example, it took advantage of its constitutional right to make treaties with foreign powers, and concluded a treaty with Canada in which the protection of certain birds was ensured on both sides of the frontier. In public health legislation advantage has constantly been taken of the right of Congress "to regulate commerce with foreign powers and among the several States." The Pure Food and Drugs Act is an example of successful legislation under this head.

The Harrison Narcotic Act depends on the right of Congress to raise taxes. Under the Act every physician who wishes to prescribe narcotics has to pay a tax—a tax which is held by many physicians to be quite unnecessarily severe, since the clear intention of the Act is not to raise revenue, but to control the distribution of certain drugs. The Child Labor Tax Law, approved in 1919, was found by the Supreme Court in 1922 to be unconstitutional, and the argument is of sufficient historical importance to be quoted at length:—

> "Taxes are occasionally imposed in the discretion of the legislature on proper subjects with the primary motive of obtaining revenue from them and with the incidental motive of discouraging them by making their continuance onerous. They do not lose their character as taxes because of the incidental motive. But there comes a time in the extension of the penalising features of the so-called tax when it loses its character as such and becomes a mere penalty with the characteristics of regulation and punishment. Such is the case in law before us."—*Child Labor Tax Case*, 259 U.S. 20, decided May 15th, 1922.

It will be seen that with this precedent another onslaught on the constitutionality of the Harrison Act is likely to prove successful. The *Journal of the American Medical Association* (Feb. 27th, 1926, p. 627), reviewing the situation, expresses no regret at the danger in which this Act is found. "No satisfactory evidence has yet been adduced," it remarks, "to show that the Harrison Narcotic Act has accomplished or is accomplishing its purpose, the suppression of the narcotic habit." Too little is known about the underground traffic, and apparent regulation by federal action may merely be blinding people to a serious state of affairs. An international conference on narcotic addiction is being planned with some energy and is to be held this summer in Philadelphia. No doubt the importance of international control of the sources of production will be taken up at this conference, but it is difficult to see any possibility of effective action without the close coöperation and machinery of the Health Section of the League of Nations.

### *Vital Statistics of New York State.*

The report on the vital statistics of New York State for 1925 shows a very satisfactory state of affairs. The Milbank Foundation is at present financing three health demonstrations in this State, and although it is not possible to estimate quantitatively the influence of these demonstrations, there can be no doubt that they have contributed to the success of the health department's work. The general death-rate (12·7 per 1000) has been lower only once—in 1921. Except for minor variations this rate has declined steadily since 1900, when it stood at 21·4. If the 1900 death-rate had prevailed last year there would have been 60,000 more deaths. The infant mortality is 68 per 1000 live births, and is the lowest on record. Among the causes of death tuberculosis (all forms) has dropped into fifth place with a rate of 90·9 per 100,000. It is exceeded by diseases of the cardio-vascular system, pneumonia, cancer, and external causes, whose importance is in the order named. The death-rate from alcoholism is 7·9, which is five times the rate from this cause in 1920.

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**Royal Commission on Local Government.**—This Commission, of which Lord Onslow is chairman, will not begin before Whitsuntide to hear evidence on the relations between local sanitary authorities and their constitution, areas, and functions. The postponement is to give time to consider the proposals for Poor-law reform, which are under discussion between the Minister of Health and the local authorities.

**Complimentary Dinner to Prof. T. G. Moorhead.**—Prof. Moorhead was recently put to the trouble of defending an action for damages brought against him by a patient whom he had examined in the course of his duty as consulting physician to a suburban hospital in Dublin. The action was unsuccessful, none of the charges being established; but his professional brethren in Dublin have thought it a suitable opportunity to express their entire confidence in him and their sympathy with him in the annoyance to which he had been subjected. Accordingly a complimentary dinner was given to him last Saturday night in the dining hall of Trinity College, Dublin. The chair was taken by the Provost of Trinity College (Most Reverend Dr. J. H. Bernard), in his capacity as an Honorary Fellow of the Royal College of Physicians of Ireland, and some 120 hosts sat down to dinner. Only four or five laymen, personal friends of Dr. Moorhead, were present. The staff of every hospital in Dublin, general and special, was represented, and among those present were teachers from all the schools in Dublin. The gathering was a remarkable exhibition of respect and affection for Dr. Moorhead.

# Correspondence.

"Audi alteram partem."

## THE CONSTITUTION AND DUTIES OF THE GENERAL MEDICAL COUNCIL.

*To the Editor of* The Lancet.

Sir,—The exposition of the functions of the General Medical Council given by its Registrar in The Lancet of Feb. 6th clearly indicates the prime services it renders. In his words the two prime services are *first*, to prevent the unfit (in education and training) from gaining access to the Register, and *secondly*, to remove the unworthy from it. The Council is the sole arbiter in each situation, but its action is subject to the ruling of the Privy Council.

### *Evolution of the Council.*

When the Council came into being in 1858 it found the entry into the medical profession was by means of training under an apprenticeship system supplemented by education tested by examination under the control of the medical corporations and the universities. The supplementary education was entirely in the hands of the different educational bodies and in consequence it varied with each. The result was that the value of the diplomas granted and the degrees conferred also varied, a high standard being maintained at some places and a low one reached at others. The difference between the education given at the universities and that at the medical schools lay mainly in the scope and in the inclusion at the universities of a greater number of the subjects upon which the science and art of medicine are based.

The Council soon standardised the examinations, and after a time widened the scope of medical education in those medical schools and universities which were below the level of the best. While the Council was standardising the medical examinations it at the same time created uniformity in medical education. All the schools came to imitate one another, and to-day, it may be said, variety has been replaced by dull uniformity. The education of the doctor was improved by standardisation of the examinations, but education tends to deteriorate under the dead weight of uniformity established by insistence on stereotyped curricula. Variety is needed to-day to give elasticity once more to the education, and to afford each centre scope to grow in directions favourable to the widening of the outlook of the doctor. It matters not in the least that the doctor is better educated at one school in chemistry, at another in physics; but it does matter that he gets a wide, if not a particular, education in each subject so that he may in practice be able to apply his intelligence and make good use of principles. Again, it is of no consequence if he is unacquainted with minute details in anatomy and physiology, provided he shall have sufficient education in each of them to be able to turn to his knowledge of them for fundamental information when in difficulties.

In all the subjects, which form the basis upon which medicine rests, the Council need not now, so it appears to me, interfere with the medical schools, whether of universities or constituent colleges of universities; and it would be well to leave the education and the choice of those subjects entirely in their hands provided the standard attained at their examinations is such as to warrant the Council in accepting a certificate that the student is fit to enter upon his clinical and other studies. In that way freedom in the choice of subjects and in the scope of education would be restored to the medical schools, the beneficial effects of which, would, I believe, be very great.

If it be advisable for the Council to accept degrees from universities as evidence of sufficient education to entitle a graduate to enter upon clinical studies, it is still more advisable that the Council should exercise greater control over the education and training at the hospitals. The hospital is the clinical laboratory in which there is room and facilities for teaching a definite number of students and no more. At first the Council was content with declaring that a hospital with less than 150 beds would not be recognised as constituting a medical school, and so far as I am aware it still remains content. When that condition was laid down the trained apprentice entered the hospital and, as was said, he *walked* it, gathering as much information as he could and attending a few lectures while preparing himself for the examinations of the medical corporations and may be those of the universities. To-day the original condition needs supplementing in the direction of limiting the number of pupils that can be adequately trained in each hospital recognised as a medical school. That is essential in the interests of clinical training, as in those of the State and of the public The Council has power to effect this reform which has been too long delayed. The examinations may be good enough but the training is not, and the remedy should be applied without hesitation.

The Council as at present constituted is hardly fit for such work, for the great majority of those upon it represent the interests of teaching bodies. And representatives of the teaching bodies could hardly function as a composite authority for establishing changes in the existing system, and at the same time act as judge of what is best in the interests of all concerned.

### *The Present Position of Specialism; Technical Assistants.*

What the Medical Act did for the doctor it should now do for the specialist. It gave the doctor a position of privilege in the State, a position that membership of a corporate body is unable to bestow. Just as the member of a medical corporation was adequately educated, trained, and tested prior to 1858, so is the specialist of to-day, generally speaking, adequately educated but chiefly self-trained. The Council has insisted on education and training, and laid down a standard of attainment for the *legally qualified* practitioner. To-day the same should be laid down for all specialisms which are, of course, attainments after registration as it is now conducted. The Council needs the advice of the specialists to formulate a scheme for the education, training, and examining of specialists who desire to become recognised as such by the State. In the interests of medicine no less than that of the public this reform should be undertaken.

Before the final extinction of the apprenticeship system in medicine the apprentices served in the capacity of technical assistants. After its disappearance those who failed to qualify became assistants to a doctor. This was disapproved of by the Council as it led to the great evil of covering—which amounted to using the assistant to do the work of visiting and prescribing for patients under the cloak of his employer. The action of the Council in suppressing covering was correct and imperative. But unfortunately no steps had previously been taken by the doctors to develop the technical side of their work, which always had been, and is to-day, delegated to those who have no intention of qualifying themselves as doctors. It is, I believe, the duty of the Council to take this matter up and to regularise the practice, for it is one that is a necessary adjunct to general practice in whatever direction it may develop. The dispenser, the electrician, the masseur, the manipulator, and so on, are indeed essential portions of the complex medical machine Each to-day can be trained in his special work, and there can be no question as to the fitness of those technical assistants to share the advantages accruing from State registration. They are worthy of it and, if such be granted to them, medicine will gain, the doctors will utilise them to the advantage of their patients, and the public will benefit.

### *The Exercise of Judicial Powers.*

Just as the Council is paramount in determining the standard of education and training to be attained by a doctor prior to his registration for the enjoyment of certain privileges, so it is paramount in giving a decision as to whether a registered person, on complaints being made, is guilty of *infamous conduct in any professional respect.* Conviction is followed by the erasure of the name. There appears to be great confusion on the question of the power of the Council. In its proper capacity it acts as a court presided over by a judge assisted by a jury. It inquires, it interprets the meaning of the phrase "infamous conduct in any professional respect," it decides on guilty or not guilty; but the punishment to be awarded is not modifiable by the Council. That it has power to investigate, to judge, and to convict is indisputable. While it possesses such powers it can exercise no disciplinary control over the accused or the body of men registered. In this respect it is like a court of law in which conviction of an offence is dealt with, but in which no cognisance can be taken of the discipline of the people.

The medical profession is peculiar in that it possesses no statutory body in control of its discipline. It is true each medical corporation possesses such power over its diplomates and licentiates, but unless the registered doctor is a member of one of these corporations he is under no such control. A graduate of the older universities is uncontrolled and rightly so, for a degree is a mark of educational attainments which conduct of any kind cannot deprive a man of. A graduate of the newer universities may, however, be deprived of his degree on grounds of moral behaviour, but cannot be on professional grounds of any degree of gravity unless he be convicted in the courts of crime.

The General Medical Council is then not a disciplinary body for controlling the professional behaviour of the doctors who, if they do not belong to a medical corporation, are not under any authoritative body One may be needed.

### *A Suggestion for Reconstruction.*

When the Council was originally formed the members were representatives of the Crown, of the universities, and of the medical corporations, the two latter being statutory bodies. Direct representatives of the registered have been added. Owing to the establishment of a number of new universities the representation from them and from the medical corporations far outweighs the others; and now we have the proportion of 27 to 11 only for the Crown and the registered. In 1858 the principle adopted in the construction of the Council served, because the medical profession had not then emerged from the state it had reached in its development by the end of the eighteenth century. And the men appointed on the Council were true representatives of the doctors throughout the land, for each had passed through the only avenue into it—namely, through a period of an apprenticeship. To-day, matters are very different, for, it may almost be said, the members of the Council, with few exceptions, have never done any general practice nor, indeed, have ever had the opportunity of becoming acquainted with its needs and its intricacies. Therefore the Council, as it exists to-day, gives a preponderating influence to the teaching and examining bodies which under the present system are sole judges of their own work. This is a serious defect not only from the point of view of control to be exercised by the Council over teaching and the standard of examination, but also from that of the exercise of judicial powers; the consequence being that those who are unacquainted with the work of an accused, if he be a general practitioner, are constituted a court with judicial powers for the conduct of his trial and for pronouncing that he is either guilty or not guilty.

Such changes have occurred during the last three-quarters of a century that there is now a real need for the formulation of a new principle as a basis for the representation on the Council. The first function of the General Medical Council concerns education and the maintenance of a reasonable standard at the examination tests, but surely there is no need to have every medical educational body represented. There is, however, need for representation of the teachers in different clinical schools, of the registered in general, and of all specialisms, and of the technical assistants, if they become registered, and of the public through the Crown as at present. In respect to the second function, the removal of the unfit from the Register, the old principle should be applied in these matters—namely, trial by our peers. For this purpose it would, it seems to me, be best to obtain power for the creation of a panel representative of all the registered, from which a jury of 12 could be chosen on each occasion when persons were accused and a prima facie case against them established; say, by a small committee of the Council itself. Such a reform in representation would bring the Council up to date and would create confidence in its deliberations and in its decisions.

To meet the requirements of to-day the following reforms are indicated: (1) The registration of medical students to begin on entry upon hospital work. (2) The number of pupils at each hospital to be regulated in accordance with the facilities and opportunities existing in them for teaching, training, and giving responsible practice to every pupil. (3) The registration of all specialists under their different specialisms. (4) The registration of all technical assistants under the various sections. (5) Lastly, the reorganisation of the method of dealing with those registered as legally qualified practitioners accused of infamous conduct in any professional respect.

I am, Sir, yours faithfully,
JOSEPH GRIFFITHS.

St. Peter's-terrace, Cambridge, March 12th, 1926.

## THE TREATMENT OF POST-MORTEM INFECTIONS.

*To the Editor of* THE LANCET.

SIR,—Mr. Handfield-Jones is to be congratulated on the able manner in which he has dealt with this subject in your issue of March 13th. As you remark in your annotation the number of fatal cases is not large, but there are other less severe cases not reported, and the timely warning of the possible ill-effects of post-mortem injuries is most opportune. Although the bulk of post-mortem work is done at the large hospitals by experienced pathologists and assistants, many autopsies are performed, as you point out, by medical men in general practice, and Mr. Handfield-Jones's article will be of especial value to them. The article is a mine of valuable information and advice, and I hope it will be possible to reproduce it in pamphlet form and to broadcast it throughout the profession. It is worthy, too, of a prominent place in text-books of surgery and in works dealing with post-mortem examinations.

Like many other pathologists, I have on occasion passed an uneasy day after receiving a slight cut or scratch while making a post-mortem examination on a septic case or investigating a specimen from the operating theatre. Mr. Handfield-Jones deals with every variety of injury and its appropriate treatment, but I should like to lay stress on one or two of his points. The two directions, (1) cease work at once and (2) encourage bleeding, should be printed in large coloured type and hung up where pathologists work. To my mind the whole success of the prophylactic treatment depends upon the prompt cessation of work and thorough washing out of the wound by the patient's own blood. The least delay or insufficient bleeding is likely to counteract all the benefit to be obtained by this treatment.

The following is my own practice:

1. Directly a prick with a needle or scalpel is received, cease work and treat the wound, for it must be assumed that micro-organisms have been carried into the tissues.

2. Make the wound bleed under a stream of water, warm for choice but not hot. Keep this up until a fair amount of blood has been ejected, the bleeding being helped by repeated squeezing of the tissues well away from the wound. When it is considered that sufficient blood has been squeezed out of the wound to carry off any organisms that may have been *lying in its depths*—

3. Carefully cleanse the surrounding skin, usually by means of a brush kept permanently in a dish of 1/20 carbolic lotion. Great care must be taken not to scrub the wound itself for fear of dislodging organisms from the surrounding skin and rubbing them into the cut or prick.

4. Paint the wound over with iodine solution followed by a layer of "new skin" or collodion and a little cotton-wool.

Do not on any account use any antiseptic before making the wound bleed. The sealing up of a wound as advocated here applies, of course, only to the *very small* cuts and pricks which form the great majority of these post-mortem injuries. I am aware of the danger of sealing up a wound in this manner, but do it deliberately in the belief that all organisms have been ejected in the blood squeezed from the wound.

The foundation for the above method of treatment is based on the following considerations:

(*a*) Micro-organisms (say streptococci) are carried by the scalpel or needle into a slit in the tissues below the protective squamous layer of the skin.

(*b*) Bleeding occurs into this slit and the formation of a blood clot quickly occurs.

(*c*) When the clot forms it seals up the outlet of the wound and so effectually imprisons any organisms that may be lying in its depths.

(*d*) If the organisms are not destroyed by the body fluids they are free to multiply and disseminate into the tissues and blood stream.

These considerations justify the conclusions that—

(*a*) Immediate ejection of the organisms is necessary.

(*b*) Delay until a clot has formed renders it very difficult and perhaps impossible for this ejection to be successfully carried out.

(*c*) Scrubbing the wound is likely to push organisms into its depths.

(*d*) Antiseptics can only destroy organisms at the surface.

(*e*) Antiseptics, such as compounds of mercury and methylated spirit, cause clotting of albumin and so effectually seal up the mouth of a wound.

One illustration of the lack of knowledge possessed on this subject must suffice. A recently qualified man was asked what steps he would take in the event of receiving a prick while doing a post-mortem. He replied: "Rinse the finger in an antiseptic at the conclusion of the post-mortem." Mr. Handfield-Jones's remark about members of the honorary staff in a hurry is much to the point. The older pathologist will not be perturbed or deviated from his routine in the event of receiving an injury. But the young pathologist or clerk is apt to take his chance and get on with his work so that a great man may not be kept waiting.

I am, Sir, yours faithfully,
ERNEST H. SHAW.

Royal Northern Hospital, March 15th, 1926.

*To the Editor of* THE LANCET.

SIR,—In his useful and timely article Mr. Handfield-Jones strongly recommends a bath of tincture of iodine. I have no doubt of the usefulness of iodine in cases of ringworm, for the treatment of which I have never required to use any other drug during my experience of nearly 40 years, but as an antiseptic in other cases I have never been sure of its usefulness. In ordinary boils I have found it delay progress, but I have never known it cure the disease. In pyorrhœa I have used it freely, working it into the pockets around the teeth, and I have held the *liniment* in my mouth for three to four minutes without improving matters in the least. About six months ago I had to treat a very severe case of erysipelas in an otherwise apparently healthy young man. The disease began, as it frequently does, over the nose and spread over head, neck, and back down to and just over the femoral trochanters. It recurred four times in spite of vaccines, and serum injected intravenously and intramuscularly, and in spite of local applications of magnesium sulphate, buttermilk, and iodine. During its spread down the back I painted three inches of the spreading margin and four inches of the skin beyond this with the tinct. iodi. fort. until the skin was almost black, yet in six hours the disease had passed through the iodine-painted skin with undiminished strength. My faith in iodine as an antiseptic has been badly shaken.

I am, Sir, yours faithfully,

W. R. DAVISON.

Ballymena, March 13th, 1926.

## TREATMENT IN DISEASES OF THE NERVOUS SYSTEM.

*To the Editor of* THE LANCET.

SIR,—Sir James Barr's criticism of my first Lettsomian lecture only tempts me to ask one question. Which should be taken the more seriously? My remark that "If all the current wasted in a year on the limbs of hemiplegic patients could be stored in accumulators, the Prime Minister's scheme for supplying electricity to the country would be rendered superfluous," or Sir James Barr's views on the pathogenesis and treatment of acute poliomyelitis and progressive muscular atrophy, which he quotes from an address he gave in 1924. He is kind enough to say that my lecture is transparently honest. May I reciprocate by saying that no one will doubt his statement that he "has dabbled a little in nervous diseases."

I am, Sir, yours faithfully,

E. FARQUHAR BUZZARD.

Wimpole-street, W., March 15th, 1926.

## GARDENLESS CITIES.

*To the Editor of* THE LANCET.

SIR,—Overcrowding in large towns can be remedied in two ways—by migration to the country, or by building lofty blocks of tenements.

As to migration, the London County Council is building at Morden, in Surrey, on an estate of 850 acres, a town of 8000 houses for 40,000 inhabitants. Now the usual size of an allotment garden is a sixteenth of an acre, and it is said it ought to be double that; but at Morden it would not be possible to have adjacent to the house a garden of sufficient size for the tenant to grow his own vegetables—he can have only a backyard.

As to tenement blocks, they should not be condemned offhand as vertical slums. A slum is a collection of houses once new and clean, which have been allowed to become overcrowded and dirty. In tenement blocks overcrowding would be prevented, and the owners would be responsible for the cleansing of the lifts and emergency stairs, which they would carry out with the most approved electrical appliances; if this service were extended to the rooms, much waste of labour in out-of-date methods would be saved; hot water could be supplied from central furnaces; open-air schools established on the flat roofs; and in the basement baths of warm water and ultra-violet light provided. On the ground floor there might be a restaurant with a store for the sale of food. No doubt there might be a greater risk among the children of epidemic disease, which in its turn might prepare the soil for other diseases, but there is no need to speculate as to whether it is possible to bring up children properly in the centre of a large city—the experiment has been tried. The Foundling Hospital was moved to its present site in 1745, and ever since then children have been brought up there in accordance with the knowledge of the day, with what results the records will show. Now another experiment is to be tried: the children are to be moved into the country, but on to what soil and into what type of building we have not yet been told.

I am, Sir, yours faithfully,

WALTER EDMUNDS.

Putney, S.W., March 13th, 1926.

# Obituary.

## WILLIAM PERMEWAN, M.D. LOND., F.R.C.S. ENG., J.P.

BY the death of Dr. W. Permewan on March 9th, at the age of 61, the medical profession has lost a member who distinguished himself in many departments of life.

William Permewan came of a Cornish family, and was educated at University College, London, where he graduated in medicine in 1886. After holding an appointment as surgeon to the Miners' Hospital, Redruth, he went to Liverpool as house surgeon to the David Lewis Northern Hospital. Taking his M.D. in 1888, he became F.R.C.S. in the following year, and in 1892 took the D.P.H. at Cambridge. It was at this time he began to interest himself in laryngology, and afterwards he became aural surgeon to the Royal Southern Hospital and the Southport Infirmary, and in 1914 lecturer in laryngology in the University of Liverpool. Dr. Permewan contributed numerous articles on diseases of the throat, nose and ear to medical journals, and was a vice-president of the Liverpool Medical Institution. In his own city, however, he was perhaps best known for his interest in politics and municipal affairs. From 1901–07 he represented Abercromby ward on the City Council and served on several of the council's committees. In 1910 he fought one of the keenest political battles in the history of Liverpool against Mr. F. E. Smith (now Lord Birkenhead), who was standing in the Unionist interest. Dr. Permewan was then a Liberal and Home Ruler and wrote a good deal on political subjects. His articles in the *Fortnightly Review* attracted attention, and in his political contributions he was unusually accurate in gauging the trend of public opinion, though in his two attempts to enter the House of Commons he was unfortunate in the selection of a constituency. Of late years he came to the conclusion that a strong Conservative Government was needed to counteract the Socialist tendencies of the day, and he played a prominent part on the Conservative side in recent elections.

"Dr Permewan," writes Sir James Barr, who has sent us many intimate details of his friend's life, "was a brilliant conversationalist, an excellent debater, and a man of great literary talent. He had a splendid voice, and if he had taken up music as a profession he might easily have been a distinguished operatic singer; his vocal power and manner would soon have placed him in the front rank."

During the war Dr. Permewan was attached to the 1st Western General Hospital. In 1901 he married a sister of Sir Max Muspratt, and the sympathy felt by his friends for his widow and son is greatly deepened by the fact that his brilliant daughter died of appendicitis only seven weeks before him. Dr. Permewan's funeral on March 13th was attended by a large and representative gathering of his fellow-citizens, including Lord Mayor, magistrates and aldermen, and the Vice-Chancellor of the University.

THE LATE DR. O'DONNELL.—Dr. David O'Donnell, who died on Feb. 25th at his home at Goole at the age of 55, had one of the largest panel practices in the West Riding. Born at Waterford, he was educated at Queen's College, Cork, and at Dublin, graduating in medicine at the University in 1891 Over 30 years ago he went to Goole, since when he has been identified with many of the social and religious activities of the town. He leaves a widow, three daughters, and one son, who is a medical student.

THE LATE DR. J. S. HENDRIE.—Dr. John Stewart Hendrie, who was killed in a road accident at Bearpark on March 8th, had recently gone to Bearpark as assistant to Dr. John Brown. At the time of the accident he was on his way to see a patient in response to an urgent call, when his motor-cycle collided with a lorry. Dr. Hendrie, who was only 23 years of age, was a native of Ayrshire and graduated at the University of Edinburgh last year.

# Medical News.

Royal College of Surgeons of England.—At an ordinary meeting of the Council on March 11th, Sir John Bland-Sutton, the President, in the chair, Sir Cuthbert Wallace (St. Thomas's Hospital) was elected Vice-President in the vacancy occasioned by the resignation of Mr. James Sherren. Mr. Gwynne Williams (University College Hospital) was elected a member of the Court of Examiners in the vacancy occasioned by the resignation of Mr. Raymond Johnson. Sir Cuthbert Wallace was also elected representative of the College on the Senate of the University of London. Dr. W. S. A. Griffith was reappointed a representative of the College on the Central Midwives Board. The President was appointed a representative of the College to attend a meeting of the Royal Society on April 30th in connexion with the celebration of the Lister Centenary. Mr. F. J. Steward was elected a member of the Committee of Management of the Examining Board in England.—The President reported that a bust by Nollekens of Dr. Matthew Baillie, and a bust by Chantrey of William Hunter Baillie had been presented to the College by Miss Hunter Baillie. She has also given five volumes containing all the records in her possession relating to the Hunter Baillie family, with annotations by herself and others. The compilation has been the work of many years, and has been throughout a labour of love. In her eighty-third year she gives them to the College "with the sure hope that the profession with which I have had such near connexion will go on from strength to strength." The best thanks of the Council were given to Miss Hunter Baillie for her very interesting and valuable gifts.

The diploma of Fellow was conferred upon David Levi, St. Mary's Hospital, who has now attained the requisite age.

Diplomas in Tropical Medicine and Hygiene were conferred (in conjunction with the Royal College of Physicians of London) upon the following candidates from the London School of Hygiene and Tropical Medicine :—

A. K. Abdel-Khalik, M. A. H. Atiya, B. N. V. Bailey, H. L. Batra, H. B. Boucher, Gwendolen S. M. Chataway, E. E. Claxton, A. K. H. El Shurbagi, S. C. Gomes, G. D. Gordon, F. G. Greenwood, J. R. Hayman, Margaret Holliday, Laura M. Jacobs, J. J. Keevil, H. D. B. Miller, R. M. Morris, E. A. Penny, J. C. Pyper, R. D. Reid, E. A. Struthers, A. G. Taylor, L. G. W. Urich, W. J. Webster, Isabel J. Woodhouse, L. T. Yiu, and W. A. Young.

Licences to practise dentistry were conferred upon the following 50 candidates :—

C. E. S. Abraham, Univ. Coll. ; E. Baines, Birmingham ; J. A. Becker, E. Boyd, D. M. Calder, J. D. Cambrook, and J. Chamberlain, Guy's ; H. Christopher, Royal Dental ; A. Clements, London ; J. C. Curphey, Royal Dental ; H. J. Daneel, A. A. Danino, and L. R. Davey, Guy's ; Marjorie H. Davy, Royal Dental ; S. Droomer, H. E. Edney, T. G. Edwards, A. E. Farara, and W. G. Fenn, Guy's ; H. Greenberg, Royal Dental ; K. H. Greenwood and H. Hall, Guy's ; L. J. Hardy, London ; A. G. Hegnauer, Royal Dental ; W. Hops, Guy's ; A. Jacobs, Bristol ; A. A. Jones, Royal Dental ; J. P. Lambert, London ; K. E. Lawton, Paris ; W. Lee, Manchester and Royal Dental ; H. F. Leese, Liverpool ; C. F. Linthwaite, Univ. Coll. ; F. D. Manners, Guy's ; E. W. Marthews, Univ. Coll. ; M. L. Myerson, London ; T. T. Oliver and C. E. Pedley, Guy's ; C. F. Preston and J. D. Robson, Royal Dental ; I. S. Rutter, F. W. Sander, E. N. Screech, and A. G. Taylor, Guy's ; H. C. Thomas, Univ. Coll. ; C. H. Tisdall, Royal Dental ; A. E. Treweek, L. Walters, and F. S. Warner, Guy's ; J. W. White, London ; and W. G. Williams, Royal Dental.

Fellowship of Medicine and Post-Graduate Medical Association.—Mr. A. Tudor Edwards will give a demonstration in clinical surgery at the Westminster Hospital on Wednesday, March 31st, at 2 P.M. This demonstration will be free to members and to ticket holders for the Fellowship's general course. Beginning on April 12th, St. Peter's Hospital will hold a two weeks' course in genito-urinary diseases. There will be clinical sessions daily, followed by formal lectures every afternoon (including Saturdays) by members of the staff. The National Orthopædic Hospital has also arranged a comprehensive special course from April 12th to 24th, for which the fee is fixed at £2 2s. From April 14th to May 5th Dr. Heald has organised a series of lecture-demonstrations in electrotherapy at the Royal Free Hospital at 5.15 P.M. An intensive course in proctology is available at St. Mark's Hospital from April 19th to 24th. There will be daily sessions from 10 or 10.30 A.M. until 6 P.M., including Saturday. Instruction will be by lecture, by demonstration, and by operative demonstration. The course will only be held if 10 entries are received by April 12th. Copies of all syllabuses, of the general course programme, and of the *Post-Graduate Medical Journal* may be had on application to the Secretary of the Fellowship at 1, Wimpole-street, London, W. 1.

Sir Arthur Keith is to be nominated as President of the British Association when it meets at Leeds in 1927.

University of London.—The title of Professor of Physiology in the University has been conferred, as from March 1st, 1926, on Dr. J. S. Edkins, in respect of the post held by him at Bedford College. He was made reader in physiology in 1915. During the war Prof. Edkins was a member of the Physiology Committee of the Royal Society and of the Grain Pest Committee, and also acted as secretary of the Chemical Warfare Medical Committee (a joint committee of the War Office and the Medical Research Council)

University of Oxford.—The next award for the Radcliffe Prize will be in 1927. This prize of £50 is awarded by the Master and Fellows of University College every second year for research in any branch of medical science, and is open to all graduates of the University who have proceeded, or are proceeding, to a medical degree in the University, and passed the last examination for the B.A. degree not more than 12 years ago, and are not Fellows on the Foundation of Dr. John Radcliffe. Memoirs must be received by the Secretary of Faculties, at the University Registry, on or before Dec. 1st, 1926. No memoir for which any University Prize has already been awarded is admitted to competition.

Early Mental Illness: Conference at Warwick.—At the instance of the visiting committee of the Warwickshire Mental Hospital at Halton, a conference has been held at Warwick of representatives of the more important general hospitals in the county to discuss the question of out-patient treatment for cases of early mental illness. Dr. C. H. Bond, of the Board of Control, said that this was the first conference of the kind and hoped that it would result in the general hospitals providing timely treatment in their out-patients' departments. A resolution was eventually passed urging the desirability of such a course

Medical Congresses in Russia.—The Commissariat of Public Health has organised a series of All Union congresses on the following subjects : Tuberculosis (April), Ophthalmology (May), Sanitary Inspection of Railways and Water Transport (May), Bacteriology and Epidemiology (May), Plague (August), Gynæcology and Midwifery (May), Therapeutics (second half of May). All these congresses will be held at Moscow except the one on gynæcology, which will be held at Leningrad. We are informed by the London representative of the Red Cross Society of Russia (U.S.S.R.) that medical guests from abroad have been made heartily welcome at medical conferences in Russia. The Commissariat of Public Health generally assists scientific visitors to obtain visas from the Foreign Office. Medical men wishing to attend will be given every help if they apply to Dr. V. N. Polovtsev, Russian Red Cross, 150, Southampton-row, London, W.C. 1, who states that "it is the sincere desire of our medical circles to come into friendly touch and coöperation with their British colleagues."

Medical Insurance Agency.—At a meeting of the committee of management held recently at the house of the British Medical Association, the following regulations were adopted for the administration of the Educational Grants (Girls) Fund :—

(a) It is not at the moment within the bounds of practical politics for the Agency to endeavour to establish a school for girls on the lines of Epsom College for boys, nor are the Committee convinced of the desirability of such a step.

(b) It is desirable that the Agency should take over and make itself responsible for the cost of education, with the contingent maintenance, where necessary, of approved girls (daughters of deceased or disabled medical men or women) between the ages of 10 and 18 should it be considered advantageous to continue education and/or maintenance up to the latter age.

(c) The usual method of selection will be for the Royal Medical Benevolent Fund Guild to be asked to submit names and particulars of suitable candidates and schools. The choice will be made by the subcommittee.

(d) In the first place three girls will be selected, the responsibility for others being assumed as and when the funds at the disposal of the subcommittee permit. It is estimated that an average sum of £100 per annum will be sufficient for each case.

(e) The foregoing shall not exclude the possibility of the subcommittee rendering assistance in cases of deserving and urgent emergency at more mature ages.

(f) Reports as to the progress of girls whose education has been undertaken by the Medical Insurance Agency will be made to the Royal Medical Benevolent Fund Guild and produced to the subcommittee.

(g) The Agency will be at liberty to terminate its liability should altered circumstances render in its opinion the assistance it gives no longer necessary or useful.

(h) The Agency may also withdraw its support after giving one term's notice of its withdrawal should it consider the work or conduct of any scholar to be unsatisfactory.

The Agency then resolved to undertake forthwith the cost of education, with the necessary maintenance, of three selected girls, the claims for selection being considered at length.

**Royal Society of Medicine.**—The Society's house and library will be closed from Thursday, April 1st, to Tuesday, April 6th, inclusive.

**Tuberculosis Society.**—A meeting will be held on Friday, March 19th, at 1, Upper Montague-street, Russell-square, London, W.C., at 8 P.M., when Dr. A. E. Evans, Inspector, Board of Control, will read a paper on Tuberculosis in Mental Hospitals.

**Hunterian Society.**—A dinner meeting of this society will be held at Simpson's Restaurant, 2, Bird-in-Hand Court, 77, Poultry, Cheapside, London, on Monday, March 22nd, at 7.30 P.M. About 8.30 P.M. a discussion on Sterilisation of the Mentally Unfit will be opened by Dr. R. A. Gibbons, Mr. Harold Cox, and Dr. R. Worth.

**Conference on Tuberculosis.**—As announced in our issue of March 6th, a joint provincial meeting of the Tuberculosis Society and the Society of Superintendents of Tuberculosis Institutions is to be held at Cambridge from March 25th to 27th. Information may be had from Dr. F. J. Blackmore, Tuberculosis Dispensary, Maxey-road, Plumstead, London, S.E. 18.

**Röntgen Society.**—The ninth Silvanus Thompson Memorial Lecture will be delivered by Sir John Thomson-Walker in the Barnes Hall, Royal Society of Medicine, 1, Wimpole-street, London, W., on Tuesday, March 30th, at 8.15 P.M. His subject will be Radiology in Urinary Surgery.

**Medical Society of London.**—The annual dinner was held at the Grand Hotel, Trafalgar-square, London, on March 12th, with Sir Holburt Waring, the President, in the chair. The first of a series of admirable speeches was delivered by Sir Archibald Garrod, who proposed the toast of the Medical Society of London, and alluded to the fact that his father, Sir Alfred Garrod, had been its president in 1860. In those days Harley-street had been very different. Then only 24 doctors were in practice there—and they all lived in their own houses. He congratulated the Society on having retained its independence when most of the other medical societies of London were united in the Royal Society of Medicine. The Society's special merit was that it was not divided into sections, and all branches of the profession could meet to discuss the same subject. Replying to the toast, Sir Holburt Waring cordially agreed with this view. The Society, he considered, brought the general practitioner and the consultant on to common ground. Speaking of its future, he said that, unfortunately, the lease of the buildings in Chandos-street would come to an end in about 16 years, and although the Society's financial position was excellent, it seemed unlikely that the conditions imposed by the ground landlord could be accepted as they stood at present. Sir Holburt Waring dealt amusingly with the contention that Harley-street had only recently become overcrowded. In the house where he started practice, he said, there had been a nursing home in the roof and a veterinary hospital in the basement, besides numerous consultants all the way up the stairs.—Mr. Warren Low, proposing the toast of the Guests, said that when asked to do so he was reminded of the octogenarian who was sentenced to 15 years' imprisonment. "My Lord," said he, "I should never live to do it." "Never mind," said the judge, "do as much as you can." He considered that the Society should follow the maxim of John Lettsom, its founder: *Facta non verba* (which an American had translated as "Plenty of victuals and no speeches"). Mr. Low at first had wondered what Dr. Lettsom, as a strict Quaker, would have thought of the Society entertaining the head of the Army Medical Services. Then he had remembered that Dr. Lettsom—Quaker or no—had allowed himself to be gazetted as Physician to the Camberwell Volunteer Infantry! The country, Mr. Low continued, was very fortunate in having Sir William Leishman in control of its military medical service, for he demonstrated in person that a man of science could rise to the highest place in that service as an administrator. Speaking of the Regius professors, Mr. Low hoped that some day the older universities might recognise surgery, the shy handmaiden of medicine, by the establishment of a chair. Meantime on Sir Archibald Garrod rested the responsibility for any abscess opened in Oxford. During the Napoleonic wars the Medical Society of London had given birth to a child—it might almost be called a war-baby—which had now become a distinguished old lady and was called the Royal Society of Medicine. To the representatives of that and other learned societies he extended a welcome. He hoped that some day the British Medical Association might be able to persuade the public that it was not the General Medical Council. Sir William Leishman, in reply, said that it must not be supposed that doctors in the services did not take the greatest interest in the profession as a whole. They were watching with interest the public encouragement of irregular medical methods, for this might have a practical and awkward application in time of war. If things went on as at present the medical services would be forced to provide osteopathic or Christian scientist healers for the troops, and every officer and man would have to wear an *enlarged identity disc stating* what form of treatment he preferred in given circumstances. These different practitioners would take so much space behind the lines that reinforcements could not be moved into the line. Speaking more seriously, Sir William Leishman said that he hoped that the profession would always be able in an emergency to provide men who could do any ordinary medical or surgical work efficiently. Mr. Townsend, Master of the Clothmakers' Company, also returned thanks to the Society on behalf of the guests.—Dr. E. M. Callender then proposed the President's health. Sir Holburt Waring, he said, was worthy to succeed those who had gone before him—some of whom had been the greatest men in the profession. Sir Holburt Waring, in his reply, said that the Society was prospering greatly. The attendance for the year had been 76 per cent. above the average. This, however, he attributed to the work of the secretaries, Mr. J. E. H. Roberts and Dr. F. G. Chandler. He proposed a toast to them, which was honoured enthusiastically, and they briefly replied.

**Royal College of Physicians of London.**—Sir Thomas Horder will deliver the Lumleian lectures on March 23rd, 25th, and 30th at 5 P.M. at the College. His subject will be Endocarditis, and any member of the medical profession will be admitted on presentation of a card.

**University of Liverpool.**—At a meeting of the Council, held on March 2nd, Emeritus Prof. W. Thelwall Thomas, Ch.M., F.R.C.S., was nominated representative of the University on the General Medical Council, in succession to the late Dr. Richard Caton.

**University College Hospital.**—The annual general meeting was held on March 18th, when an account of the year's activities was given, and the progress of the Rockefeller Foundation gift and the completion of the new maternity home was recorded.

**University of Dublin.**—The Board of Trinity College, Dublin, has appointed Dr. T. Percy C. Kirkpatrick honorary lecturer in the history of medicine in the University of Dublin. Dr. Kirkpatrick holds the degrees of M.D. and Litt.D. of the University of Dublin; he is a Fellow and the registrar of the Royal College of Physicians of Ireland, and a member of the Royal Irish Academy. Dr. Kirkpatrick is the author of several well-known books on the history of Irish medical institutions, including the School of Physic in Ireland, the Rotunda Hospital, and Dr. Steevens' Hospital.

**Hospital Tax in Quebec.**—A Canadian correspondent last week drew attention to various schemes proposed for raising money to reduce the deficit on hospitals. A Bill has now been introduced in the Quebec Legislature to provide that on every meal taken in a restaurant and costing over one dollar (*4s. 2d.*) a tax of 5 per cent. shall be imposed for the support of hospitals.

**Convalescent Home for Derbyshire Miners.**—On the recommendation of the Derbyshire District Welfare Committee a grant of £110,000 has been approved to establish a convalescent home on a site of four acres at Skegness given by the Derbyshire Miners' Association. Provision will be made for 150 patients (including 30 women) and a permanent staff of about 15.

**Association of Special Libraries and Information Bureaux.**—A meeting will be held at the Institution of Mechanical Engineers, Storey's Gate, London, S.W., at 2.30 P.M., on Monday, March 29th, to inaugurate the Association, whose object is to facilitate the coördination and systematic use of sources of information in science, industry, commerce, and public affairs generally. When fully developed it will be a clearing house for those wishing to get into touch with specialised knowledge. Further information may be had from the Organising Secretary, 38, Bloomsbury-square, W.C. 1.

**An American Tour in Europe.**—About 250 American and Canadian members of the Interstate Post-graduate Medical Association of North America, of which Lord Dawson of Penn is president, will arrive in Paris on May 7th to make a post-graduate tour of Italy, Switzerland, Czecho-Slovakia, Austria, Germany, Holland, and Belgium, ending at Brussels on June 26th. The committee invites up to 25 British medical men to join the tour. Further particulars may be had from Mr. Philip Franklin, hon. sec., Foreign Relations Committee of the Association, 27, Wimpole-street, London, W. 1.

# Parliamentary Intelligence.

## NOTES ON CURRENT TOPICS.

### *Lead Paint Poisoning.*

On Monday, March 15th, Sir William Joynson-Hicks (Home Secretary) presented the Lead Paint (Protection Against Poisoning) Bill, a measure to make better provision for the protection against lead poisoning of persons employed in painting buildings. The Bill was read a first time.

## HOUSE OF LORDS.

### Thursday, March 11th.

### *Coroners Bill.*

On the motion for the second reading of the Coroners (Amendment) Bill,

The **Lord Chancellor** said that the main objects of the Bill were: (1) to carry out the recommendations of a committee which reported in 1910 on coroners; (2) to replace by permanent provisions the provisions of an Act of 1917, the Coroners (Emergency Provisions) Act, which reduced the minimum number of a coroner's jury to seven, and a provision in the Juries Act, 1918, which enabled a coroner to dispense with a jury altogether in a certain limited class of cases; and (3) to deal with a point which was raised in debate last May in the House of Lords—namely, the prevention of unnecessary duplication of proceedings before coroners and justices. This was an amending Bill, and if it was passed, consolidation would become necessary, but it was proposed to reserve that consolidation for a later Bill. Clause 1 of the Bill required that coroners should have a professional qualification, either medical or legal. There was a saving proviso for persons who had served for a period of not less than five years prior to the commencement of the Act as a franchise coroner or a deputy to a county or borough coroner. The provision which prevented an alderman or councillor of a county or borough from acting as a coroner was extended, and there was a provision which abolished the requirement that a county coroner must possess land in fee—a qualification which seemed no longer to be necessary. Clause 3 made provision for the appointment of a coroner for the Isle of Wight. Hitherto, under a special clause, the Governor of that Isle had been appointed coroner and he had appointed a deputy, but with His Majesty's knowledge and approval it was proposed to abolish that old system. By Clause 4 it was proposed to abolish another old system—namely, that of franchise coronerships as from the next vacancy, and incidental to that to enable the Sovereign, if he desired it, to relinquish the right to appoint a franchise coroner in the Duchy of Lancaster. The existence of these franchise coronerships had long been an obstacle in the way of a convenient and economical rearrangement of coroner districts, and he thought that this alteration would lead to economy as well as greater efficiency. By Clause 5 borough coroners, like county coroners, would be paid by salary instead of by fees. Everyone who was cognisant of the system of payment of these county officers would agree that the payment of a salary was better than payment by casual fees, which might vary. It was sometimes said, he thought without foundation, that the fee system induced the coroners to multiply inquests. Clause 6 enabled the council to call upon a coroner to retire upon pension and fixed the maximum amount of pension. There was also a provision to enable the coroner to retire voluntarily, or on medical grounds. Clause 11 provided for the rearrangement of county coroners districts. Under the present law it was done by Order in Council—a somewhat inconvenient and cumbrous method—and it was now proposed to allow the Secretary of State on certain applications to make an order for that purpose. Clause 12 made permanent Section 7 of the Juries Act, 1918. This enabled a coroner to dispense with a jury altogether in certain cases, but it had been suggested that safeguards were necessary before that could be done, and accordingly some additional safeguards were contained in this Bill. The Bill provided that a jury must be summoned if it appear to the coroner (*a*) that the deceased came to his death by murder, manslaughter, or infanticide; or (*b*) that the death occurred in prison or in such a place or in such circumstances as to require an inquest under any Act other than the Coroners Act, 1887; or—and he thought this was new—(*c*) that the death was caused by an accident, poisoning, or disease notice of which is required to be given to a Government Department or to any inspector or other officer of a Government Department, under or in pursuance of any Act; or (*d*) that the death was caused by an accident arising out of the use of a vehicle in street or public highway; or (*e*) that the death occurred in circumstances the continuance or possible recurrence of which is prejudical to the health or safety of the public or any section of the public. He thought their lordships would agree that those were useful safeguards and would secure in those cases in which a public inquest by a jury was especially desirable that a jury should be called. Clause 13 made the viewing of the body obligatory only on the coroner himself. Clause 14 extended the power of the coroner to accept the verdict of a majority of the jury, and also in other cases of disagreement to discharge the jury and begin the inquest afresh, instead of adjourning it to the Assizes as at present. Clauses 15 and 16 were intended to meet the difficulty which had arisen where two deaths arising from the same cause might have occurred in different jurisdictions. In those cases it might be necessary at present to hold two separate inquests by two separate coroners. This clause would enable a body to be taken by order into another jurisdiction, so that only one inquest might be necessary. Clause 17 enabled an inquest to be held by direction of the Secretary of State even when the body was destroyed or otherwise not available. Clause 18 enabled a second inquest to be held where the High Court was satisfied that by reason of the discovery of new facts or evidence it was necessary or desirable in the interests of justice that another inquest should be held. Clause 19 related to cases of suspected murder, manslaughter, or infanticide. Considerable difficulty sometimes arose in those cases from the clashing or simultaneous holding of the coroner's inquest and the inquiry before the magistrates, and he thought that in cases of this kind the inquest should be suspended pending the criminal inquiry. This clause gave effect to that idea. It required that in certain cases of this nature the coroner should, in the absence of reason to the contrary, adjourn the inquest until after the conclusion of the criminal proceedings. He might, if he thought fit, discharge the jury, and then, after the conclusion of the criminal proceedings, he would resume the adjourned inquest if he was of opinion that there was sufficient cause to do so. It was provided that where the inquest was not resumed the coroner must furnish the particulars necessary for the registration of the death. It was added that whether the jury was the old jury or a new one, the issues decided in the criminal proceedings were not to be canvassed at the coroner's inquest. Clauses 20 and 21 provided for certain post-mortem examinations or analyses being made without holding an inquest. The first schedule contained a graduated scale which had been the subject of discussion with those who represented the coroners and which he understood gave satisfaction. He hoped their lordships would give a second reading to the Bill.

After discussion the Bill was read a second time.

## HOUSE OF COMMONS.

### Wednesday, March 10th.

### *Hours of Labour in Shops.*

Mr. **Taylor**, in asking leave to bring in a Bill to amend the Shops Acts, 1912 and 1913, said there was no occupation in the country which employed so large a number of young persons and women as the retail distributive trades, and it was well known from medical statistics that their long hours, and particularly their standing, caused a great deal of bad health among them. The workers in the distributive trades, unfortunately, were not covered by the Washington Convention and therefore it might be that they would be likely to be outside any general legislation. At the present time there was with two exceptions no legal limitation of the hours of labour so far as the mass of shop assistants were concerned. The first of these exceptions was that young persons under the age of 18 were not permitted to be employed for more than 74 hours per week inclusive of meal times, and the second exception was that persons in the refreshment trades were not permitted to be employed for more than 65 hours per week exclusive of meal times. The first clause of this Bill provided for a legal 48-hour week.

Leave to bring in the Bill was granted without a division, and the measure was brought in and read a first time.

### *Deaths from Excessive Drinking.*

Mr. **Scurr** asked the Home Secretary whether he was aware that inquests were held in London during 1925 on 17 persons in which the verdicts attributed the cause of death to excessive drinking, most of the cases being due to the increased habit of drinking methylated spirit; and whether he proposed to introduce legislation to secure that this spirit should be rendered unpalatable for drinking purposes.—Sir **W. Joynson-Hicks** replied: The figure given by the hon. Member is correct and compares favourably with the corresponding figures for 1923 and 1924, which were 31 and 35 respectively. I cannot confirm that the beverage was methylated spirit, but on that assumption the figures give some reason to hope that the introduction of pyridine as an ingredient, which began on May 1st, 1924, has had beneficial results; and the suggestion is supported by a substantial decrease in 1925 of the number of persons convicted of drunkenness whose condition was reported as being due to methylated spirit. The preventive measures already adopted appear to be deserving of further trial before the question of further measures is considered.

### *Sickness and Disablement Benefits.*

Dr. VERNON DAVIES asked the Minister of Health the rate of sickness and disablement benefits granted to a man invalided from either of the fighting services of the Crown for pulmonary tuberculosis under the National Health Insurance Act.—Mr. N. CHAMBERLAIN replied: The normal rates of sickness and disablement benefits for men are 15*s.* and 7*s.* 6*d.* a week respectively. These rates are increased by amounts varying from 1*s.* to 5*s.* a week for sickness benefit, and by half these amounts for disablement benefit, in the case of men who are entitled to additional benefits from their approved societies.

### *Tuberculous Service Men and Pensions.*

Dr. VERNON DAVIES asked the First Lord of the Admiralty if he had formed any opinion as to how the conditions of Service had caused or contributed to the disease of pulmonary tuberculosis for which 11 officers and men were invalided out of the Service in the years 1923, 1924, and 1925, for conditions which had been decided as attributable to the Service; if pensions had been granted these officers and men on account of their disability; and, if not, what compensation had been given them.—Mr. DAVIDSON replied: I regret that on further investigation it is found that in seven cases only was the disease finally decided to be attributable to the Service and not 11 as implied in a previous reply. In five of these cases pensions have been granted by the Admiralty. In the remaining two cases the disease was due to service in the war and the claims were accordingly dealt with by the Ministry of Pensions. The conditions of service causing the disease in these cases were: (*a*) continuity of disease or allied diseases during service and aggravation by service in small craft; (*b*) extraordinary exposure and hardship in submarine service; and (*c*) infection while nursing cases of pulmonary tuberculosis under exceptional exposure.

### *Death Statistics in England and Wales.*

Mr. RHYS DAVIES asked the Minister of Health if he would furnish a return giving the following particulars for England and Wales for each year during the past 30 years—namely, total deaths from all causes; deaths certified by registered medical practitioners; inquest cases; uncertified deaths reported to coroners; and uncertified deaths not reported to coroners.—Mr. N. CHAMBERLAIN replied: The following is the best information available in reply to the question:—

*Deaths Registered in England and Wales.*

| Year | Total. | On medical cert. | On coroner's cert. (inquest cases). | Uncertified. | |
|---|---|---|---|---|---|
| | | | | Reported to coroner. | Not reported to coroner. |
| 1896 | 526,727 | 482,109 | 32,990 | 11,628 | |
| 1897 | 541,487 | 496,515 | 33,869 | 11,103 | |
| 1898 | 552,141 | 507,541 | 34,159 | 7,940 | 2,501 |
| 1899 | 581,799 | 534,446 | 36,608 | 8,435 | 2,310 |
| 1900 | 587,830 | 539,712 | 36,881 | 9,223 | 2,034 |
| 1901 | 551,585 | 504,818 | 36,781 | 8,285 | 1,701 |
| 1902 | 535,538 | 490,091 | 35,793 | 8,251 | 1,403 |
| 1903 | 514,628 | 470,346 | 35,561 | 7,574 | 1,147 |
| 1904 | 549,784 | 505,004 | 35,898 | 7,788 | 1,094 |
| 1905 | 520,031 | 475,018 | 35,667 | 7,145 | 1,001 |
| 1906 | 531,281 | 486,892 | 36,275 | 7,223 | 891 |
| 1907 | 524,221 | 480,151 | 36,474 | 6,759 | 837 |
| 1908 | 520,456 | 476,359 | 36,620 | 6,737 | 740 |
| 1909 | 518,003 | 474,648 | 36,430 | 6,331 | 594 |
| 1910 | 483,247 | 441,480 | 35,109 | 6,041 | 617 |
| 1911 | 527,864* | 483,998 | 37,200 | 6,666 | |
| 1912 | 486,907* | 443,966 | 36,608 | 6,333 | |
| 1913 | 505,026* | 462,417 | 36,419 | 6,190 | |
| 1914 | 516,778* | 472,804 | 37,505 | 6,270 | |
| 1915 | 562,653 | 516,441 | 39,128 | 7,084 | — |
| 1916 | 508,227* | 463,039 | 36,100 | 7,628 | — |
| 1917 | 498,955* | 456,699 | 34,704 | 7,552 | — |
| 1918 | 611,991* | 570,735 | 33,012 | 8,244 | — |
| 1919 | 504,234* | 466,088 | 31,483 | 6,698 | — |
| 1920 | 466,130 | 429,156 | 31,011 | 6,063 | — |
| 1921 | 458,710* | 424,106 | 29,204 | 5,340 | — |
| 1922 | 486,529* | 450,996 | 30,346 | 5,187 | — |
| 1923 | 444,869* | 409,094 | 30,778 | 4,990 | — |
| 1924 | 473,270* | 437,112 | 31,108 | 5,050 | — |
| 1925 | 473,006* | 435,404 | 32,701 | 4,811 | — |

* *Note.*—The required analysis is only obtainable in these years from the provisional Quarterly Returns, and the total shown in the first column may therefore differ slightly from the figure published after correction.

## THURSDAY, MARCH 11TH.

### *Cost of Naval Medical Service.*

On the motion "that Mr. Speaker do leave the chair" on the House going into Committee on the Navy Estimates for 1926–27,

Mr. AMMON said that the medical service seemed to be costing far more than it ought to cost per head in the navy, and he could not see why it could not be coördinated under one head and thus help to simplify the routine work of administration, save a considerable sum of money to the country, give greater efficiency, and knit the Services closer together as a whole than at the present time

Commander BELLAIRS said he thought that the demand of the House for a Ministry of Defence was due to the fact that it was so difficult to bring about coördination through the agency of the House, its Estimates Committee, or its Public Accounts Committee. He had pleaded for single hospitals in naval ports to deal with military and naval needs. It was not until the Geddes Committee was set up that they succeeded in getting the recommendation carried through for single hospitals for the Army, Navy, and the Air Force. But how were they defeated? The Government immediately appointed the head of the Army Medical Service to confer with the head of the Naval Medical Service, and these gentlemen sat down and said, "We will give a sop to the Geddes Committee You naval fellows give up Gibraltar and we of the army will give up Malta"; and then, having given that sop, they shut the lid down on any further reform on the matter Therefore, the House in despair, naturally asked for a Ministry of Defence.

The motion was agreed to by 190 votes to 113.

### *Government and the Factory Bill.*

Major GLYN asked the Home Secretary whether he would consider the desirability of introducing the Factory Bill, with the clauses relating to hours of labour left out, for the purpose of information and consideration, and to indicate the intentions of the Government.—Sir W. JOYNSON-HICKS replied: As I have previously explained, the Government desire, if possible, to arrive first at an international understanding on the general question of hours of labour For that and other reasons the Bill cannot be passed into law this session. I propose, however, to meet what I understand to be the wish of many hon. Members by introducing the Bill for purposes of consultation and discussion later in the session.

### *The Handling of Foodstuffs.*

Colonel DAY asked the Minister of Health if his attention had been drawn to the recommendation contained in the book recently issued by the Royal Sanitary Institute to deal with the handling of foodstuffs; and whether he would see that the suggestions were acted upon.—Mr. N CHAMBERLAIN replied: Yes, Sir; I have received a copy of the book which contains a number of valuable suggestions as to the handling of food. Many of them, as the authors recognise, are more suitable as a basis for propaganda than for statutory regulations, and I hope that they will receive due publicity. The subject of clean food is under the constant attention of my department, and regulations on such questions as meat, milk, and food preservatives have recently been made or published in draft.

### *Medical Services in the Navy.*

Commander BELLAIRS asked the Financial Secretary to the Treasury whether the Committee of Investigation into the rates of pay of the medical services of the Navy and Army and of the new medical service of the Air Force would be allowed to investigate the proposal for a unified medical service for all the fighting forces.—Mr. R. MCNEILL replied: The report of the Weir Committee of 1923 on the amalgamation of services common to the Navy, Army, and Air Force, and the consequential conclusions of the Government as explained to the House on May 30th, 1923, have been made available to the Committee. I am not in a position to anticipate the nature of the Committee's report.

### *Venereal Disease and Vaccination.*

Captain FAIRFAX asked the Minister of Health if the records of his department showed any cases where venereal disease was directly caused by vaccination; and, if so, what number of cases in 1923, 1924, and 1925 respectively.—Mr. N. CHAMBERLAIN replied: There is no record in my department of any such cases since the Vaccination Act of 1898 came into operation, and I am advised that the use of calf lymph, which became general after that Act, renders it impossible for venereal disease to be transmitted by vaccination.

### *Indian Revenue from Opium.*

Mr SCURR asked the Under Secretary of State for India the revenue derived by the Government of India last year from opium.—Earl WINTERTON replied: Figures for the year 1924–25 are not yet available in this country. The gross revenue from opium of the central and provincial governments in 1923–24 was £3,331,000.

### Monday, March 15th.

#### *Indian Subordinate Medical Service.*

Colonel **Applin** asked the Under Secretary of State for India whether he was aware that no promotions to commissioned rank had been made in the Indian subordinate medical service since 1923; and, in view of the number of qualified men who were eligible for and awaiting promotion, would he take steps to ensure that their claims were dealt with at once.—Earl **Winterton** replied: The circumstances were brought to my noble friend's notice by the Anglo-Indian deputation which waited upon him last summer. The Government of India are being asked for an early report on the subject.

#### *Army Medical Service.*

On the motion "that Mr. Speaker do now leave the chair" on the House going into Committee of Supply on the Army Estimates for 1926–27,

Sir L. **Worthington-Evans** (Secretary of State for War) said that last year he had drawn attention to the number of candidates for enlistment who had been rejected as unsuitable on physical and medical grounds. The number was still very high. Out of 89,277 candidates, 52,200 were rejected on physical or medical grounds, or about 58 per cent., which was almost exactly the same proportion as last year. The normal system of promotion in the army up to the rank of major would not be changed, but officers of conspicuous merit would be selected for and granted accelerated promotion. All promotion above the rank of major would be by selection.

The motion "that Mr. Speaker do now leave the chair" was carried by 190 votes to 85.

The House then went into Committee, Captain **Fitzroy** in the chair.

Major-General Sir **Richard Luce** called attention to the present position of the Royal Army Medical Corps. He said it was time that the House realised the deplorable condition to which that corps had been driven, because of the fact that it was unable to obtain the necessary recruits to make up the deficiencies that were taking place. The establishment of the R.A.M.C. in officers, reduced after the war, was now 900; it was something like 1000 just before the war. Now, instead of being 900 as the establishment allowed, it was at present only 794. That was due almost entirely to the fact that they were unable to obtain officers to join the corps. The corps was very well organised when war broke out in 1914, and it did what was expected of it. If there was any breakdown at all in the medical services during the war it was not in the R.A.M.C. but in the Indian Medical Service where public opinion had not been brought to bear and where economy had been over-exerted. The very success of the R.A.M.C. was its undoing. Immediately after the war the economies began and it seemed that the axe not only cut off all the branches, but slipped down and cut the roots as well, until the very sustenance of the whole tree was in danger. Ever since it had been slowly dying from lack of proper nutriment. What were the causes of the present unpopularity of the corps? It was partly due to the fact that the pay, which was fairly satisfactory before the war, had not been increased in proportion to the increase of pay of other branches of the army. A captain's pay in the R.A.M.C. had been increased by only 74 per cent., whereas the pay of a captain in a line regiment had been increased by 88 per cent.; a major's pay had been increased by 49 per cent., as compared with 97 per cent. for a major in a line regiment. The increases of retired pay had been grossly inadequate for certain of the ranks, so much so that at the present time an officer who left the service as a major actually got less than he would have got before the war, in spite of the rise in the cost of living of 75 per cent. above normal. There had been other grievances in the matter of allowances to officers serving in India. The result had been that, whereas it required 45 new recruits every year to make up the wastage in the R.A.M.C., it had only been able for the last three years to get an average of 10, and there was a yearly loss of about 35 officers. In a few years it would be quite impossible to carry on. They were hardly able at the moment to perform those duties which were expected of them, much less the duties which would be expected of them in war. They could only carry on at all at the present time by employing a considerable number of civil medical practitioners in those places where the R.A.M.C. officers should be employed. The result was that a number of officers who had to serve abroad was much larger than it ought to be. This shortage acted in a sort of vicious circle. It made the corps more unpopular because the shorter the numbers the harder it was on those who were left. They had to do far more foreign service, were moved much more, and the senior officers who were left—there were practically no juniors—had to do work which was normally done by junior officers. As the officers of the corps became more and more discontented, it acted in such a way as to prevent fresh officers joining. The difficulties of this corps had been pointed out for at least two years, but up to last October nothing was done to redress the grievances or improve the service. Last October a committee was appointed by the Cabinet to inquire into the services not only of the R.A.M.C. but of the Navy and the Air Force. That committee was still sitting. Various recommendations had been made to it for the improvement of the corps generally; first in the matter of pay, especially those in the middle ranks, majors and lieut.-colonels, who suffered most because their expenses were heavier; secondly, for the removal of the grievances to which he had referred; and, thirdly, the question of granting of a position on the Army Council to the Director-General of the Medical Service. This was considered to be one of the most important considerations. It was of the utmost importance. The medical service had always been at a disadvantage compared with other branches. It was of the utmost importance if that service was to be maintained that it should have a distinct and separate voice in the control of army matters. The committee would soon issue its report, and then the Government would have an opportunity to restore this important branch of the service to popularity and well-being. If they insufficiently appreciated the need a very heavy responsiblity would rest upon them. Should another emergency arise with a R.A.M.C. reduced in strength, insufficiently prepared and organised, who could tell what grave scandal might occur and what would be the declaration of the people when they found such a thing happening? He knew that the Secretary for War appreciated what was happening to the corps, but he appealed to the whole Government and to public opinion.

The vote was agreed to.

### Tuesday, March 16th.

#### Government Economy Bill: Reduced State Insurance Grant.

Mr. **Churchill** (Chancellor of the Exchequer), in moving the second reading of the Economy Bill, said that the first proposal was to reduce the State contribution to Health Insurance from two-ninths to one-seventh for men and one-fifth for women. This would effect a saving of over £2,750,000. The contribution of the State to the Widows and Old Age Pensions Bill was £5,750,000 and the Old Age Pension was granted at 65. This substantially reduced the liabilities for which the Health Insurance fund was responsible by taking off from the beginning of 1925 every contributor between 65 and 70. That was to say, at the very period of life when sickness benefits were at a maximum and would relieve the fund of a responsibility actuarially computed at upwards of £37,000,000. The surplus of the Health Insurance Fund was to-day estimated at no less than £65,000,000. Of this £13,000,000 was due to be spent over the next five years in additional benefits. The Royal Commission had reported that after providing these large additional benefits there would be a surplus of over £2,000,000 per annum after meeting also the cost of medical benefit for which this Bill also made provision. Of course, it would be very agreeable to apply this surplus in still further extending the benefits and it would be easy to unfold many very desirable plans for spending the money. Such plans would, however, automatically attract an additional State grant of £500,000, and, therefore, the increasing prosperity of the insurance fund would from that very fact throw an increasing burden upon the over-strained Exchequer. The Government had, therefore, decided on a general view of the financial situation that the time had come when the State contribution to National Health Insurance could, both in justice and in prudence, be reduced as provided in the Bill.

Mr. **Snowden** moved the rejection of the Bill.

Dr. **Drummond Shiels** said the first essential in the social health insurance system was a complete medical scheme, not only a general practitioner's scheme as the present service was, but a scheme which would give all expert advice, both medical and surgical, and all remedial and curative agencies such as dental and optical treatment, and all kinds of institutional treatment with skilled nursing, and with the help of such accessories as X rays, massage, light treatment, and so one which could not be given in the miserable homes in which so many of the workers lived. The report of the Royal Commission suggested that the various medical services organised by the State should continue to expand both in scope and in the range of the persons to whom they applied. The proposals of the Government in this Economy Bill were made in the face of the findings of an impartial Royal Commission, which recommended the continuance of the Health Insurance service in the present system of contribution partnership, and with its present State grants. If the provisions of this Bill were accepted in respect of the reduction of the State grant it would mean first an alteration of the original terms of the partnership and a dislocation of the finance of the scheme; it also meant thrusting some societies into deficiencies and applied a new guarantee of solvency by the State so far as the payment of treatment and minimum cash benefits were concerned; and it also meant the postponement of the extended system of dental, optical, and other medical benefits. This so-called economy by the Government was a declaration that they did not realise the importance of this great health system to the workers of the country.

### *Miners and Small-pox Infection.*

Colonel DAY asked the Minister of Health for what reason his department refused to sanction the payment of compensation to miners resident in the area of the Wath-upon-Dearne urban district council who were prevented from working owing to the danger of infection from small-pox.—Sir K. WOOD replied: My right hon. friend is advised that it was not necessary, with a view to preventing the spread of infection, for these men to cease their employment. It is understood, however, that the local authority admit their responsibility for the advice given to the men to cease work and desire accordingly to pay reasonable compensation. In these circumstances my right hon. friend is willing to consider further representations from the authority on the question of sanction.

Colonel DAY asked if the hon. gentleman considered that the local medical officer of health was incorrect when he stated that infection might be caught by these men if they went to work.—Sir K. WOOD: No, Sir. I make no such statement.—Mr. W. THORNE asked if there were any reasons why these men should not be given work while there was a small-pox outbreak. They could not prevent them from walking about the streets.—Sir K. WOOD replied that he had already stated that it was not necessary to prevent these men looking for employment.—Mr. T. WILLIAMS asked if Sir K. Wood said that the medical officer of health was entirely wrong.—Sir K. WOOD replied in the negative. He had already stated that he made no comment on the action of the medical officer, one way or the other.

# The Services.

## ROYAL NAVAL MEDICAL SERVICE.

THE following appointments are notified:—Surg.-Comdrs.: J. L. Priston and G. L. Buckeridge to the *President*, addl., for duty in Medical Dept., Admiralty, and as assistants to Medical Director-General; J. G. Boal to the *President*, addl., for three months' post-graduate course; P. L. Gibson to the *Tamar*, addl., for Hong-Kong R.N. Hospital; and C. H. Hawe to the *Tiger*. Surg. Lt.-Comdr. J. G. Sinclair to the *Effingham*. Surg.-Lts. D. C. Drake to the *Mantis* and A. L. McDonnell to the *Montrose*, addl. (on relief), to be accommodated in the *Vampire*.

## ROYAL ARMY MEDICAL CORPS.

Maj. C. Kelly, half-pay list, late R.A.M.C., retires on account of ill-health.

Capt. C. Armstrong is placed on the half-pay list on account of ill-health.

### ARMY DENTAL CORPS.

Temp. Capt. A. A. McMullan, from Gen. List, to be Capt.

### TERRITORIAL ARMY.

Lt. C. A. R. McCay to be Capt.

Lt. S. Orchard (late R.F.A., T.F.) to be Lt.

### TERRITORIAL ARMY RESERVE OF OFFICERS.

Capt. F. M. Halley, from Active List, to be Capt.

Sanitary Companies.—Capt. S. Summerson, from Active List, to be Capt.

## ROYAL AIR FORCE.

Flying Officer G. P. O'Connell is granted a permanent commission in this rank.

J. P. Hederman and E. J. Mockler are granted short service commissions as Flying Officers for three years on the Active List.

## INDIAN MEDICAL SERVICES.

Lt.-Col. W. M. Houston, health officer, Port of Bombay, acts as Presidency Surgeon, First District. The services of Dr. W. P. Robson, officiating Chief Inspector of Explosives, have been placed with the Army Department. Maj. H. J. Holgate acts as Superintendent, Special Prison, Aden. Dr. J. F. C. Rose-Meyer, Deputy Superintendent, Mental Hospital, Benares, has been posted to reserve duty at Allahabad. Lt.-Col. Dunn has been nominated a member of the United Provinces Medical Council. Dr. C. H. Mason officiating civil surgeon, has been confirmed Civil Surgeon' The following have been granted leave: *Dr. A. M. Watts*, Medical Officer in Charge, Dufferin Hospital, Lucknow, Maj. H. Scott, Professor of Pathology, King George's Medical College, Lucknow; Dr. O. H. Gade, Civil Medical Charge, Chakrata District, Dehra Dun; Lt.-Col. H. W. Illius, Civil Surgeon, Mussoorie; and Lt.-Col. W. D. Wright, Civil Surgeon, United Provinces.

# Medical Diary.

## SOCIETIES.

ROYAL SOCIETY, Burlington House, Piccadilly, W.

THURSDAY, March 25th.—4.30 P.M. *Papers to be read:* E. B. Verney: The Secretion of Pituitrin in Mammals, as shown by Perfusion of the Isolated Kidney of the Dog. *(Communicated by Prof. T. R. Elliott.) H. W.* Florey and H. M. Carleton: Rouget Cells and their Function. (Communicated by Sir Charles Sherrington.) *Papers to be read in title only:* Seona King: Oogenesis in Oniscus Asellus. (Communicated by Prof. E. S. Goodrich.) R. M. Sargent. The Relation between Oxygen Requirement and Speed in Running. (Communicated by Prof. A. V. Hill.)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MONDAY March 22nd.—8 P.M., ODONTOLOGY. Blood films and kymographic records of hearts will be shown at 7.30 P.M. Mr. F. N. Doubleday: Action of Local Anaesthetic Solutions on Living Cells.

TUESDAY.—5.30 P.M., MEDICINE. Discussion on Modern Methods of Control of Infectious Disease, opened by Sir John Robertson.

WEDNESDAY.—5 P.M., COMPARATIVE MEDICINE. Dr. J. F. Halls Dally: Ultra-Violet Radiation in Man. Mr. E. Middleton Perry: The Therapeutic Effects of Ultra-Violet Rays and *High-frequency Currents* in Animals (illustrated by lantern slides). Prof. Leonard Hill will open the discussion.

THURSDAY.—8.30 P.M., UROLOGY. Mr. R. H. Jocelyn Swan (President): Some Notes on Cases of Horse-shoe Kidney. Mr. E. D'Arcy McCrea: The Musculature of the Bladder.

FRIDAY.—5 P.M., STUDY OF DISEASE IN CHILDREN. (Cases at 4.30 P.M.) Dr. E. A. Cockayne: (1) Blue Sclerotics *and Brittle Bones; (2) ? Hanot's Cirrhosis. Dr. D. W.* Winnicott: Three Cases illustrating Post-encephalitic Hyperpnoea. Dr. N. Hobhouse: Juvenile Parenchymatous Neuro-syphilis.—8 P.M., EPIDEMIOLOGY AND STATE MEDICINE. Prof. W. J. Wilson: An Account of Typhoid Fever in Northern Ireland. The Library will be open until 10 P.M.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, March 22nd.—8.30 P.M., Prof. Blair Bell, Dr. J. G. Adami, Sir Lenthal Cheatle, and others: The Use of Lead in the Treatment of Malignant Disease.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos-street, Cavendish-square, W.

FRIDAY, March 26th.—8.30 P.M., Dr. G. Riddoch and Dr. P. Panton: Marriage and Syphilis. A discussion will follow.

## LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

*ROYAL COLLEGE OF PHYSICIANS, Pall Mall East, S.W.*

TUESDAY, March 23rd.—5 P.M., Sir Thomas Horder: Endocarditis (first Lumleian Lecture).

THURSDAY.—5 P.M. (second Lumleian Lecture).

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn-fields, W.C.

MONDAY, March 22nd.—5 P.M., Mr. Shattock: Surgical Affections of the Kidneys.

FRIDAY.—5 P.M., Sir Arthur Keith: Spina Bifida and Allied Conditions.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, Bloomsbury, W.C. 1.

POST-GRADUATE COURSE: FEBRUARY-MARCH, 1926.

CLINICAL LECTURES AND DEMONSTRATIONS.

MONDAY, March 22nd.—2 P.M., Out-patient *Clinic: Dr.* Hinds Howell. 3.30 P.M., Mental Deficiency: Dr. Birley.

TUESDAY, Mar. 23rd.—2 P.M., Out-patient Clinic: Dr. Walshe. 3.30 P.M., Cerebral Vascular Disease, II.: Dr. Adie.

THURSDAY, Mar. 25th.—2 P.M., Out-patient Clinic: Dr. Kinnier Wilson. 3.30 P.M., Physiology of Muscular Contraction: *Dr. Martin.*

FRIDAY, Mar. 26th.—2 P.M., Out-patient Clinic: Dr. Adie. 3.30 P.M., The Cerebro-spinal Fluid in Syphilis: Dr. Greenfield.

The fee for the Course, including Pathology lectures, is £5 5s. For those who hold Perpetual Tickets the fee is £3 3s.

Mr. Armour and Mr. Sargent operate at the Hospital on Tuesday and Friday mornings at 9 A.M., or at such other times as may be announced.

Any part of the Course may be taken separately. Special arrangements will be made for those unable to take the whole Course.

Fees should be paid to the Secretary of the Hospital at the Office on entering for the Course.

J. G. GREENFIELD, *Dean of Medical School.*

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

*THURSDAY, March 25th.—4 P.M., Dr. A. M. H.* [illegible] Pyogenic Infections of the Skin.

FELLOWSHIP OF MEDICINE AND POST-GRADUATE MEDICAL ASSOCIATION, 1, Wimpole street, London, W.

Monday, March 22nd, to Saturday, March 27th.—Hospital for Consumption, Brompton, S.W. All-day Course, second week. Operations, lectures, and demonstrations from 10.30 A.M.—Hampstead General Hospital, Haverstock-hill. Second week of Course for Practitioners in all departments of the Hospital throughout the demonstrations.—London School of Hygiene and Tropical Medicine, Endsleigh-gardens, N.W. Tuesday and Thursday, 2 P.M., Dr. Low and Dr. Manson-Bahr: Special lecture-demonstration illustrated by cases in hospital.—Chelsea Hospital for Women, *Arthur street*, S.W. Post graduate Course in Gynæcology. Daily operations, lectures, demonstrations, &c. (Third week.) Further information from the Secretary of the Fellowship of Medicine.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

Monday, March 22nd.—10 A.M., Surgical Out-patients: Mr. W. E. Tanner. 10.30 A.M., Gynæcological Operations: Mr. A. E. Giles: Throat, Nose, and Ear Operations: Mr. W. Ibbotson. 2 P.M., Medical, Surgical, and Gynæcological Clinics, Operations. *6.30 P.M., Venereal Department.*

Tuesday.—2 P.M., Medical, Surgical, Throat, Nose, and Ear Clinics, Operations. 4.30 P.M., Dr. A. J. Whiting: Value of the Reflexes in Diagnosis.

Wednesday.—10.30 A.M., Surgical Operations: Mr. E. Gillespie. 2 P.M., Medical, Eye, and Skin Clinics, Operations. 5.30 P.M., Venereal Department.

Thursday.—10.30 A.M., Dental Out-patients: Mr. E. S. Pierrepont. 2 P.M., Medical, Surgical, and Throat, Nose and Ear Clinics, Operations. 5 P.M., Operations.

Friday.—10.30 A.M., Eye Operations: Mr. N. Fleming. 2 P.M., Surgical, Medical, and Children Clinics, Operations. 3 P.M., Gynæcological Clinic. 6.30 P.M., Venereal Department.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE LECTURES.

Tuesday, March 23rd.—4.15 P.M., Mr. C. Roberts: Atypical Forms of Acute Appendicitis.

Friday.—4.15 P.M., Dr. J. Wharton: Demonstration of Ophthalmic Cases.

## Appointments.

Douglas, Charlotte A., M.D. Glasg., has been appointed Medical Officer to the Scottish Board of Health.

Mann, Ida C., M.B., B.S. Lond., F.R.C.S. Eng., D.O.M.S., Assistant Surgeon to the Central London Ophthalmic Hospital.

Yates, H. B., M.B., B.Ch. Camb., F.R.C.S. Eng., Part-time Demonstrator in Anatomy in the University of Sheffield.

St. Thomas's Hospital: Maxwell, L. B., M.B., B.Ch. Camb., Medical Secretary to the School; Cole, L. B., M.B., B.Ch Camb., M.R.C.P. Lond., Resident Assistant Physician; and Cooke, A. M., M.B., B.Ch. Oxf., Medical Registrar.

Certifying Surgeons under the Factory and Workshop Acts: Davies, I. H., M.B., Ch.B. Liverp. (Cerrig-y-Druidion District of the County of *Denbigh*); *Parry*, G. W. V., L.R.C.P. Lond., M.R.C.S. Eng. (St. David's District of the County of Pembroke).

## Vacancies.

*For further information refer to the advertisement columns.*

*Accrington, Victoria Hospital.*—H.S. £150.

*Belgrave Hospital for Children, Clapham-road, S.W.*—H.P., H.S., and Asst. H.P. Each at rate of £100.

*Birmingham City Mental Hospitals.*—Asst. M.O. £350.

*Bristol Mental Hospital.*—Sen. Asst. M.O. £550.

*Central London Ophthalmic Hospital, Judd-street, St. Pancras, W.C.*—Sen. and Jun. H.S. At rate of £100 and £50 respectively.

*Central London Throat, Nose, and Ear Hosp., Gray's Inn-road, W.C.*—Hon. Asst. Out-Patient Reg.

*Durham County Council.*—Dist. Tub. M.O. £600.

*Evelina Hospital for Children, Southwark, S.E.*—H.S. At rate of £120. Also Hon. Asst. Aural S.

*Hampstead Borough.*—Four Consulting Obstetricians.

*Hospital for Diseases of the Throat, Golden-square, W.*—Med. Reg.

*Hospital for Sick Children, Great Ormond-street, W.C.*—H.S., H.P., and Asst. Cas. O. £50 in each case.

*Hospital of St. John and St. Elizabeth, 40, Grove End-road, N.W.* Res. H.P. and H.S. At rate of £100 and £75 respectively.

*Hull and Sculcoates Dispensary*—M.O. £500.

*Leamington Spa, Warneford General Hospital.*—Res. H S. £150.

*Liverpool, Walton Institution, Rice lane.*—Res. Asst. M.O. £200.

*London Lock Hospital, 283, Harrow-road, W.*—Second H.S. £150.

*Manchester, Ancoats Hospital.*—H.S. At rate of £100. Also Asst. M.O. in Ven. Clinic. £1 1s. per clinic.

*Manchester Babies' Hospital, Burnage-lane, Levenshulme.*—Res. M.O. At rate of £125. Also Non-Res. Clin. Asst. At rate of £50.

*Manchester Children's Hospital and Northern Hospital for Women and Children.*—Pathologist. £400.

*Manchester Committee on Cancer.—Pathologist. £1000.*

*Manchester Royal Infirmary, Roby-street.*—Res. M.O. Also Asst. M.O. At rate of £200 and £100 respectively.

*Metropolitan Asylums Board.*—Asst. Pathologist. £700.

*Mount Vernon Hospital, Northwood, Middlesex.*—Hon. Asst. Actino-Therapeutist.

*National Hospital for the Paralysed and Epileptic, Queen-square, W.C.*—Orthopædic S.

*Newcastle-upon-Tyne Hospital for Sick Children.*—Sen. and Jun. Res. M.O.'s. At rate of £120 and £100 respectively.

*Northumberland County Council, Wooley Sanatorium, near Hexham.*—Asst. Med. Supt., &c. £600.

*Norwich, Norfolk and Norwich Hospital.*—H.S. £120.

*Oxford, Radcliffe Infirmary and County Hospital.*—Hon. S., Hon. Asst. P., and Hon. Asst. S.

*Paddington Green Children's Hospital, W.*—H.P. and H.S. Each £150.

*Prince of Wales's General Hospital, Tottenham, N.*—Two H.S.'s and one H.P. At rate of £120. Also Jun. H.S. and Jun. H.P. At rate of £90.

*Redhill, Surrey, Royal Earlswood Institution.*—Jun. Asst. M.O. £250.

*Rochdale Infirmary and Dispensary.*—Jun. H.S. £200.

*Royal Dental Hospital of London, 32, Leicester-square, W.C.*—House Anæsthetist. 10s. 6d. per attendance.

*Royal National Orthopædic Hospital, 234, Great Portland-street, W.*—H.S. At rate of £150.

*Royal Westminster Ophthalmic Hospital, King William-street, Strand, W.C.*—Asst. S.

*St. Andrew's Hospital, Devons-road, Bow, E.*—Med. Supt. £1000.

*St. Leonards-on-Sea, Buchanan Hospital.*—H.S. £150.

*Sheffield Royal Infirmary.*—Jun. Aural and Ophthalmic H.S. £80.

*Southampton County Borough.*—Tuberculosis O. £750.

*South London Hospital for Women, South Side, Clapham Common, S.W.*—H.P. and three H.S.'s. All at rate of £50.

*Stockport Infirmary.*—Hon. P. and Hon. S.'s.

*Sunderland Borough Mental Hospital, Ryhope.*—Asst. Med. Supt. £500.

*University of London, King's College for Women.*—Head of Dept. of Hygiene and Bacteriology, &c. £400.

*West London Hospital, Hammersmith-road, W.*—Hon. Med. Radiologist.

*Willesden Urban District Council.*—Consulting Ophth. S. 4 guineas per session.

*Wrexham and East Denbighshire War Memorial Hospital.*—Hon. Asst. P.'s., Ophth. S., Pathologist, and Dental S.

The Chief Inspector of Factories, Home Office, London, S.W., announces a vacancy for a Certifying Factory Surgeon at Kilmarnock (Ayrshire).

## Births, Marriages, and Deaths.

### BIRTHS.

Chance.—On March 11th, at Clarges-street, W., the wife of Dr. R. Maxwell Chance, of a daughter.

Corkey.—On March 13th, at Epsom, the wife of I. W. Corkey, M.C., F.R.C.S., of a son.

### DEATHS.

Dickson.—On March 12th, at Llanbedr Hall Sanatorium N. Wales, David McMurray Dickson, M.C., M.R.C.S., L.R.C.P., aged 34.

Milton.—On Feb. 23rd, suddenly, in Cairo, on his way to India, Francis Ralph Septimus Milton, F.R.C.S., M.R.C.P.

Permewan.—On March 9th, William Permewan, M.D., F.R.C.S., J.P., of Normanton-avenue, Liverpool, aged 61 years.

*N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.*

Royal Medical Benevolent Fund.—At the last meeting of the Committee 48 cases were considered and £620 voted to 12 applicants. The following were some of the cases relieved:—

M.B., 1882, married, has been an invalid for 25 years and has the constant attention of his wife. Their total income amounts to £156 per annum, and the house they live in is their own. Rates average 14 guineas per annum. One daughter, aged 34, is married with three children and lives in Rhodesia. Voted £30 in 12 monthly instalments.

Daughter, aged 58, of L.R.C.P. & S. who died in 1878. Has been a nursery governess and mother's help, but is now only able to do very light work. She is at the end of her resources. Friends gave her some help. Board residence amounts to 28s. a week. Voted £18 in 12 monthly instalments.

Widow, aged 69, of M.B. who died last year. Husband had been in receipt of a grant four months prior to his death. Applicant is at present living with married daughter who is unable to give any monetary help. Total income £20 from investments. Friends gave £26. Board-residence amounts to 25s. a week. Voted £26 in 12 monthly instalments.

Daughter, aged 71, of M.D. who died in 1859. Applicant asks for assistance as her sister, who was a grantee of the Fund, died at Christmas. Applicant received from friends £52 and she made £14 by plain sewing. The rent of her cottage is 4s. 6d. a week, and rates £5 per annum. Voted £5.

Widow, aged 68, of L.R.C.P. & S. who practised in the north of England and died last month after some years of illness. Husband had been in receipt of an annuity from the Fund of £10 per annum and also had the Old Age Pension. An adopted daughter lives at home and contributes £1 a week out of her earnings of 30s. a week. Applicant has no income whatever apart from the daughter's money. Voted £26 in 12 monthly instalments.

Subscriptions may be sent to the Hon. Treasurer, Sir Charters Symonds, K.B.E., at 11, Chandos-street, Cavendish-square, London, W. 1.

# Notes, Comments, and Abstracts.

## PUBLIC HEALTH IN PERSIA.

## 1914–24.

BY A. R. NELIGAN, M.D. LOND., M.R.C.S., D.T.M. & H. CAMB.,

PHYSICIAN TO H.M. LEGATION, TEHRAN; BRITISH REPRESENTATIVE ON THE PERSIAN SANITARY COUNCIL.

No connected account of public health questions in Persia has been published since the year 1910, except for a report by the writer on the influenza epidemic of 1918.[1] Reasons are not wanting for collecting in a single paper information which, though available, is scattered through numerous reports and minutes. The following are some of them.

1. The difficulty of obtaining (for reasons which will appear) correct information on the epidemiology of Persia and on sanitary matters in general in the country; this applies to residents and must do so with greater force to authorities abroad. Thus, in the *Times* of May 5th, 1924, in an article on the "Ravages of Malaria," the Persian Sanitary Council was represented as having reported to the League of Nations that "recurring epidemics of cholera, plague, relapsing fever, small pox, typhoid, typhus, and malaria, lasting sometimes several years have occurred throughout Persia during the last 11 years." This alarming account was exaggerated, to say the least of it, and the Sanitary Council must be excused direct responsibility for it. It was, however, to be read in the light of an appeal to the League from Tehran for help in combating malaria.

2. The importance of studying from time to time Persia's position in the international sanitary situation. Foyers of plague have been described; are there any to-day? Are any of the other great epidemic diseases endemic? Is Persia a channel for the transmission of disease from east to west?

3. Changed communications with Persia. After the Bolshevik revolution the usual route between Europe and North and Central Persia was closed and replaced by the long journey via Bombay, the Persian Gulf, and Mesopotamia. Now this latter route is falling into disuse and the new trans-desert route from Beyrout to Bagdad has again brought Persia within 10 or 13 days of London. Incidentally, this same route, continued via Iraq and the Persian Gulf, has brought India within nine days of the eastern Mediterranean.

1. The extension of railways to two fresh points on ersia's frontiers. In the south-east the line from Quetta Nushki has been prolonged to Duzdab on the Persian de. In the west the military railway made by the British rmy from Basra to Bagdad was continued to Quraitu on he frontier. Later, in 1921, the terminus was withdrawn o Khanikin, 18 miles from the Persian frontier.

5. The introduction of motor transport and therefore of nore rapid internal communications.

6. The opportuneness of describing any progress made n sanitation, medical education, and the practice of medicine n Persia.

7. The fact that during the war and after it parts of Persia were fought over and occupied by British forces.

Lastly, the "opium question." Recent international discussions have brought out its importance, and no account of public health matters in Persia can omit it.

### *Geography and Climate.*

Reference has been made to the difficulties experienced in obtaining accurate sanitary information about Persia. It will be well to start by describing some of them, all the more so that if they are realised much that comes later will be more easily understood. They are physical and administrative.

Persia covers a bigger area than do France, Belgium, Germany, and Spain together, but her population is only 10 million at the most, of whom 2 million are nomads whose yearly migrations cover immense tracts. Except for the littorals of the Caspian Sea and the Persian Gulf, the country is an elevated plateau 2000 to 5000 ft. above the sea. The central and eastern portion is a vast, waterless desert. The rest is cut up by high mountain ranges into deep valleys and wide plains. These ranges encircle the desert in their general tendency to run from north-west to south-east. They cut off one district from another and make communication difficult. Main roads are few and bad; journeys are slow even by motor-car. The difficulties of travel are increased by heat in summer, by snow in winter, and by floods in spring. There are no railways, though the towns of Tabriz and Duzdab are connected with external systems. There are many hundreds of miles of mountain or desert frontier and of lonely sea-coast. Telegraphic and postal communications are possible only with the larger towns and along the main routes.

A word about climate to conclude this short sketch of the physical features of Persia. That of the plateau is dry and exhilarating; the sun is seldom clouded; the rainfall is low (8 to 12 in.) and is limited to the period October to May. The hot summer is followed by a cold winter, and the thermometer, which may reach 120° F. in the less elevated parts in July or August, may fall to well below zero in higher districts in December or January. The Caspian provinces, on the other hand, are damp and depressing with their cloudy skies, high rainfall (50 to 60 in.), and moderate temperatures. The shores of the Gulf combine high humidity with great heat; again the rainfall is low—8 to 10 in.

### *Medical Education.*

The efficiency of the health services of a country depends on a regular supply of properly trained medical officers. Medical education in Persia, in spite of years of experience and expense, is, it must be candidly stated, of a very low standard. A State diploma has been in existence for some 40 years. The medical school is at Tehran; it is very poorly equipped and the teaching is largely theoretical. No fees are charged. There is a long list of so-called professors, two (the lecturers on surgery and bacteriology) are French, the others are Persians, some of whom have French diplomas. The two Europeans have no say in the management of the school. Dissection is not permitted by the religious law. Hospital attendance is not compulsory. The young diplômés prefer to remain in Tehran or in one of the larger towns. There is a great need of well-trained doctors, especially in the country districts, and there is no source of supply of men adequately equipped, in the modern sense of the word, for quarantine work, for special posts during epidemics, for the newly-organised and enlarged army, or as municipal and provincial health officers. The difficulties of the public health authorities at Tehran in dealing with emergencies or in obtaining accurate information may well be imagined. Indifferent medical training lies at the source of most of these difficulties, and though some improvements have been noted of late, it is not easy to see how any great advance can be made, unless more students are sent abroad, or unless the medical school is reorganised under Western supervision.

### *Central Sanitary Administration.*

The Persian Sanitary Council has, except for one short interval in 1921, continued to be the chief sanitary authority. This body, though a Persian department, has foreign representatives sitting on it, and in this respect resembles the defunct Constantinople Board of Health. The President, up till the outbreak of the war, had always been one of the French doctors in Persian employ. The Persian members are 12 *membres titulaires*, all doctors, together with representatives of ministries (Foreign Affairs, Interior), the police and customs departments. Besides these there are an unlimited number of *membres honoraires* without votes. In 1911 the British, American, French, Russian, and German Governments were represented by the medical officers of their legations. The Austro-Hungarian Government sent a special delegate and the Constantinople Board was also represented. Other European members were the medical superintendent of the Indo-European Telegraph Department (Government of India), the two French professors in the medical school, and a veterinary surgeon. The British, American, French, and German Legations are still represented. There are local sanitary commissions at Tabriz and Meshed.

Up till the year 1921 the council was a dependency of the Ministry of the Interior. After the coup d'état of that year a ministry of health was formed and the council became a purely advisory body for a few months. Then the ministry was closed and the council placed under the Ministry of Public Instruction.

As regards the duties of the council, they are primarily to deal with epidemics and to make quarantine arrangements on the frontiers. As the sole sanitary authority in the country, however, it has found itself constrained to take the lead in all sorts of parochial questions—public vaccination, for instance—and is consulted on every imaginable subject having any connexion at all with medicine. It has a small annual budget for the expenses of its secretariat, and up to the outbreak of the late war it received an annual sum of roughly £5000 for dealing with epidemics. This payment ceased and requisition had to be made for funds as necessity arose. Persia has for years been in a state of great financial stringency, and, naturally, the sanitary services have not come off best in the struggle to gain the ear of the Treasury. Still, it must be admitted that the Government has done its best in difficult circumstances to give effect to the recommendations made to it. Another source of revenue specially earmarked for the vaccination service and the purchase of sera and vaccines—namely, a tenth of the tax on vehicles and animals—has lapsed, at any rate, in its original form, and of late years only just enough has been received to keep the service alive. With the introduction of new financial arrangements by the American advisors in 1923, a budget for the sanitary services had to be presented, and the first, that for 1924–25, amounted to £27,000 at par. This did not include the municipal services.

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[1] Reports on Public Health and Medical Subjects. No. 4. Report on the Pandemic of Influenza, 1918–19. Ministry of Health.

The council holds monthly meetings throughout the year. Business is discussed in either Persian or French, and the minutes are printed in French. There are three permanent commissions—hygiene, finance, and personnel. The *Commission d'Hygiène* holds frequent meetings and during epidemics has executive powers.

The duties of the Sanitary Council may be summed up as follows: (1) To act as advisory body to the Persian Government on all questions of public health and international sanitation. (2) To deal with epidemics in the country. (3) To organise and supervise the sanitary defences of the frontiers. (4) To receive and collate sanitary reports. (5) To carry on public vaccination. (6) To supervise the importation and distribution of morphine, cocaine, and their derivatives.

Since the above paragraphs were written yet another change has been made in the sanitary administration. By order of the Sardar Sepah, Prime Minister and Minister for War,[*] by far the most forceful character in Persian politics for many a long day, it has been attached to his department. The President of the Sanitary Council has been made Director of Public Health Services. The council remains as principal advisory body. The financial situation of the country is improving, but the standard of medical education must be raised for progress to be made in public health matters.

### *Municipal Health Services.*

In 1919 the Sanitary Council put forward a scheme for a health service for the large towns, but little progress has been made except in the capital itself.

In Tehran (population estimated at 230,000) there had been a nominal principal medical officer of health for some years, and in 1917 five assistants were given to him, one for each quarter of the city. In 1916 a public asylum was opened by the police administration and was later transferred to the municipality and enlarged. In 1921 the Tehran municipality was completely reorganised as an independent administration, and a medical service formed. A number of treatment centres for the poor were opened: six general, one for women, one for venereal diseases, and two dental. A municipal hospital of nominally 100 beds was also created. In 1918 a poorhouse and an orphanage were opened. The former now accommodates some 100 persons and the latter some 700 children. In 1923 a creche for foundling infants was opened.

*Water Supplies.*—In 1923 the municipality assumed responsibility for the distribution of water. The supply of some towns, such as Isfahan and Resht, is by wells, but in most places, including the capital, the water is derived from distant underground springs. These are brought to where the water is required in artificial channels (*qanaats*), still underground, which gradually approach the surface. Thence the water runs in open courses. It is drunk as well as used for irrigation and all domestic purposes, including the special ablutions of Mussulmans. For the Mussulman running water is pure. There are three public laundries in Tehran, but it has been found impossible to check the washing of clothes in the water channels. As regards Tehran, with a magnificent catchment area close at hand (the Elburz chain), it would be easy to provide a piped water-supply.

*Certification of Death.*—The Tehran Municipality introduced death certificates in 1922; they are collected by the washers of the dead. Their value as a basis for mortality statistics is limited, however, by the fact that a symptom such as ascites is often given as the diagnosis, and that not all bodies, though nearly all, are taken to the public washers. Further, while the washers have orders to refuse to deal with bodies which are not accompanied by a certificate, neither a statement as to the cause of death nor the signature of the medical attendant is necessary, and the certificate is often signed by a medical officer of health. It will be seen from the list given below that in the case of more than one-sixth of the total deaths in Tehran in a single year the cause has been returned as unknown. This is partly to be explained by the fact that it is common for doctors to be changed several times during an illness, and that the poor do not, as a rule, seek medical advice when it is clear that there is no hope of recovery. A medical officer confronted with such cases is naturally often unable to state the cause of death (the religious law forbids autopsies), but he always gives a certificate provided that he is satisfied that there is no question of crime. The certificate is therefore in a large number of cases simply a permit to carry out the last rites. Since, however, the mortality lists issued by the municipality are the only statistics of the kind obtainable in Persia, those for one year are given below as sufficient to show the principal causes of death in the largest city. The list may be taken as an average specimen; it is very like those for the two previous years.

*List of the Principal Causes and Numbers of Deaths, City of Tehran.*

March 21st, 1924, to March 20th, 1925.

| | | |
|---|---|---|
| Respiratory system— | | |
| Pleurisy .. .. | 608 | |
| Pneumonia .. | 240 | |
| Bronchitis.. .. | 8 | |
| Asthma .. .. | 18 | |
| Whooping-cough | 48 | |
| Other diseases .. | 5 | 927 |
| Digestive system— | | |
| Diarrhœa .. .. | 437 | |
| Dysentery.. .. | 43 | |
| Intestinal obstruction .. | 17 | |
| Cholerine .. .. | 9 | |
| Enteritis .. .. | 6 | |
| Hæmorrhoids .. | 2 | |
| Hepatitis .. .. | 63 | |
| Jaundice .. .. | 5 | |
| Hernia .. .. | 5 | |
| Other diseases .. | 29 | 616 |
| Tuberculosis .. | 499 | |
| Scrofula .. .. | 11 | 510 |
| Malaria .. .. .. .. | | 399 |
| Stillbirths .. .. .. | | 173 |
| Typhoid fever .. .. | | 157 |
| Ascites .. .. .. .. | | 153 |
| Nervous system— | | |
| Apoplexy .. .. | 63 | |
| Paralysis .. .. | 57 | |
| Epilepsy .. .. | 5 | |
| Mania .. .. | 5 | |
| Melancholia .. | 5 | |
| Other diseases .. | 2 | 137 |
| Urinary system— | | |
| Nephritis .. .. | 82 | |
| Albuminuria .. | 3 | |
| Incontinence of urine .. .. | 4 | |
| Other diseases .. | 29 | 118 |
| Circulatory system— | | |
| Heart disease .. | 44 | |
| Anæmia .. .. | 15 | |
| Hæmorrhage .. | 6 | |
| Other diseases .. | 2 | 67 |
| Measles .. .. .. .. | | 49 |
| Small-pox .. .. .. | | 41 |
| Diphtheria .. .. .. | | 33 |
| Influenza .. .. .. | | 20 |
| Erysipelas .. .. .. | | 17 |
| Anthrax .. .. .. | | 15 |
| Typhus fever .. .. | | 11 |
| Tetanus.. .. .. .. | | 6 |
| Scarlatina .. .. .. | | 2 |
| Syphilis .. .. .. | | 26 |
| Cancer .. .. .. .. | | 25 |
| Diseases of the skin .. | | 10 |
| Gangrene .. .. .. | | 3 |
| Sudden death .. .. | | 90 |
| Debility and old age .. | | 51 |
| Malnutrition.. .. .. | | 32 |
| Syncope .. .. .. | | 5 |
| Cachexia .. .. .. | | 3 |
| Poisoning .. .. .. | | 9 |
| Murder .. .. .. .. | | 7 |
| Suicide .. .. .. .. | | 1 |
| Unknown causes .. .. | | 742 |
| Total .. .. | | 4522 |

*Notes.*—The 608 cases of "pleurisy" certainly include many cases of pneumonia, whilst much bronchitis has evidently been classed as pneumonia. The deaths from whooping-cough are presumably from broncho-pneumonia and the 49 from measles might equally well be placed under disease of the respiratory system, thus still further adding to the mortality due to this cause. The low figure for heart disease (44) is explained partly by the fact that acute rheumatism is rare. "Paralysis" certainly includes a number of cases of syphilitic myelitis, and ascites includes many cases of malarial cachexia.

Taking the population of Tehran as 230,000, the total of 4522 deaths for the year in question works out at a mortality of 19·66 per 1000. One-quarter of the total number of deaths occurred in infants under one year of age. In the three years for which statistics have been published two deaths were attributed to appendicitis, three to diabetes, three to rabies, one to alcoholism.

*Hygiene.*—There is one schools medical officer for Tehran. He is employed by the Ministry of Education. The schools, as indeed all the institutions mentioned above, are in ordinary houses more or less adapted to the purpose in view, and not in special buildings. The municipality has drawn up regulations for restaurants, public baths, establishments where the dead are washed, abattoirs and butchers' shops, and chemists. All the innovations described are steps in the right direction and worthy of all praise. Their value is, however, diminished by the lack of training of the medical personnel. Urban conservancy—progress has been made in street cleaning and lighting at Tehran, and a water-cart has appeared—public latrines and private closets, malaria prophylaxis, drinking-water supplies, protection of perishable food, and slaughter-houses are some of the more important untouched problems. In the largest towns the public baths which play such an important part in the life of the people are being improved, and the common hot-water tank is giving way slowly to the douche system.

A simple pit of greater or less depth is still the sole sanitary contrivance in Persia; the absorbent nature of the soil in the greater part of the country is well suited to it. Uncared for, as it frequently is, it becomes an intolerable nuisance and danger. In the towns there is a great scarcity of public latrines, and most waste pieces of ground are used as squatting places.

*Provincial Services.*—During recent years a number of sanitary medical officers were appointed for the provinces.

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[*] [illegible] King of Persia on Oct. 31st, 1925.—Ed. L.

Like most Persian health officers, they had had a moderate clinical training but no special teaching in sanitation, bacteriology, &c. They had no laboratories to which to refer and no disinfecting apparatus, or, indeed, supplies of drugs. Owing to non-payment of their salaries some have left their posts.

### *Frontiers.*

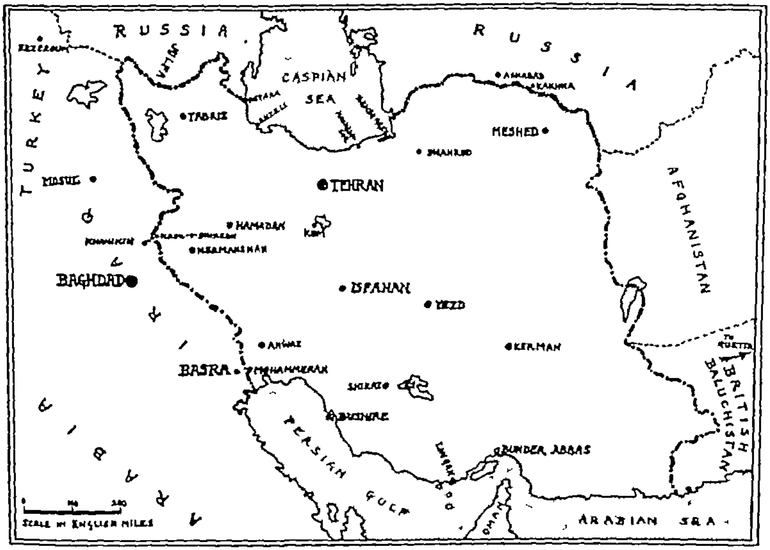
As will be evident from the section on epidemics, the countries bordering on Persia either have endemic centres of plague and cholera, or are liable to outbreaks of those diseases. The watching of many thousands of miles of frontier is as difficult for her sanitary administration when the need arises, as it is for her customs officials. Fortunately the need is not as continuous; and also, fortunately, the frontiers are usually crossed or crossable at fairly definite points only, while elsewhere arid plains or pathless mountains offer an effective barrier to the introduction of epidemics, as well as to their spread in the interior. Persia is a signatory power of the later international sanitary conventions.

*Persian Gulf Quarantine Service.*—This service as being the best equipped is mentioned first. There are at present, and have been for the last 16 years, five quarantine stations equipped with disinfecting apparatus along the Persian Gulf littoral. The Government of India has continued to lend medical officers to the Persian Government for this service. The chief quarantine medical officer with two assistants resides at Bushire, and the subordinate personnel is Persian.

There is accommodation at each station for first-, second-, and third-class passengers, and disinfecting apparatus. Of recent years the Persian Government has spent little on the buildings, and there is need of landing jetties for small boats. As is well known the Persian ports have no harbours and ships have to lie off the shore at a distance varying from three to nine miles. This entails no small hardship on the medical officers.

A study of the sections on plague and cholera will show that the service provides an important obstacle to the introduction of these diseases from India and the opposite coast of the Gulf. To deal with the regular large shipping is a comparatively simple matter, and its greatest difficulty lies in coping with the *cabotage* along so many miles of lonely coast-line. The inhabitants on the other side of the Gulf have an unpleasant habit of fleeing in small craft to the Persian side whenever plague appears among them. It would seem, however, impossible to design anything better than the present line of stations with customs officials and other coast watchers in between. That the small boat menace can be, and is being, effectively dealt with was shown, for instance, in the case of Lingah in December, 1923. There the medical officer found cases of plague landed down the coast, probably from Dobai on the opposite shore of the Gulf, and dealt with them and contacts, so that there was no spread of the disease.

*Russo-Persian Frontier.*—The trans-Caucasian frontier has been defended at important points such as Julfa, where the railway line from Tiflis to Tabriz enters Persia, Shahtakht, and Khudafarin, by means of sanitary posts improvised as the need arose. There are no permanent medical officers, buildings, or disinfecting apparatus. Similar conditions exist in the trans-Caspian frontier, where the railway from Krasnovodsk approaches Persian territory. The points usually chosen for quarantine stations are opposite Ashkabad, Kaakha, and Sarakhs. On the Caspian adequate quarantine stations were built in 1912 at the ports of Enzeli and Astara and supplied with disinfecting stoves. That at Astara has been practically destroyed by storms and the encroachment of the sea. At Enzeli, the most important Persian port on the Caspian, the station is in little better state as a result of the passage of Russian troops during the war and subsequent local disturbances. Medical officers are posted at each place. The ports of Mashadi-Sar and Bendergez have no quarantine stations; the doctors of the local customs offices carry out port duties in case of need.



*Eastern Frontier.*—The most important trade route crossing the Eastern frontier is the railway line from Quetta to Duzdab in the Sarhad. This line was continued from Nushki to Duzdab during the war and a small town has sprung up at the latter place. So far the Persian Government has not found it necessary to take any special sanitary measures on this route. The Sarhad is separated from India by the whole of British Baluchistan, and neither plague nor cholera has appeared in that province.

*Western Frontier.*—The Turco-Persian frontier is crossed by numerous routes, the most important being that which runs to Erzerum and Trebizond. There are no quarantine establishments. The Perso-Iraqi frontier is crossed by the extremely important Kermanshah Bagdad road at Kasr-i-Shirin. This has always been the most important pilgrim route in Persia, for it leads through Bagdad to the Holy Shiah cities of Najef and Kerbela, to which places, moreover, many corpses are taken for burial. Its importance has been trebled however of recent years, for during the war the British Army in Mesopotamia built a railway to Quaraitu on the Persian frontier six miles north of Kasr i Sh

further, after the Russian revolution in 1917, it

principal route into northern and central Persi

1923, too, when the trans-desert route from the Me to Bagdad was opened, the journey from Persia to the West was still further shortened and the route is likely to be always a popular one among through travellers. The railway terminus has now been moved back to Khanikin, 18 miles inside the Iraq frontier, whence there is a regular motor service into Persia.

From the sanitary point of view, however, the importance of the route will always be its use by pilgrims, and this will be discussed under another heading. There are no permanent sanitary officers or buildings on the frontier. In times of need doctors have been sent to Kasr-i-Shirin, and a quarantine station improvised out of tents and old customs godowns in very bad conditions.

To the south of Kasr-i-Shirin there is a customs post at Soumara opposite Mandali, and this was used as a quarantine post in 1923. Further south still the Anglo-Persian Oil Company have, at their refinery on the island of Abadan, a fully-equipped port sanitary service (see "Epidemics: Plague"). During epidemics the same company has inspection posts at Sayed Hassan on the Karun River and at Dar-i-Khazineh, for traffic going by river or road to the oil-fields. At Kut Abdullah below Ahwaz there is an isolation hospital and inspection post for boats.

### *Pilgrim Traffic.*

The most famous Shiah Shrines, as has been stated, are in Iraq. The number of passports issued to pilgrims in the last normal year (1921–22) was 11,609, of which over 11,300 were delivered in Kermanshah. These figures do not, however, represent the total number of pilgrims, for several members of a family may be on one passport. More than half pass between September and November. The greatest number passing in a day has been 1000.

The number of dried corpses passed through Kasr-i-Shirin for burial at Kerbela in the year 1922–23 was 4200. There is an inspection service in charge of a Persian doctor at Kermanshah. A fee is charged, but the receipts of late years have not exceeded the expenses of collection.

Plague is endemic from Bagdad to Basra and the pneumonic form has been reported. Cholera also appears from time to time. The question of adequate sanitary supervision of the pilgrim traffic along the Kermanshah-Bagdad route has therefore always been a source of anxiety to the Persian authorities. This has not been diminished by the recent provision of more rapid transport by rail and road between the interior of Iraq and Persia. While making the pilgrimage more easy, it has brought at the same time possible centres of infection nearer to the frontier than in the days when the journey had to be done with transport animals or horse-drawn conveyances. On the other hand, the organisation of a health service by the British authorities in Iraq has led to early notification and prompt action whenever either plague or cholera appears, so that the chances of unobserved spread are considerably diminished. Indeed, in the year 1923, when there was a sharp epidemic of cholera in Iraq, there is little doubt that the energetic action of the health service was the principal factor in preventing the spread of the disease to Persia. The methods employed included an extensive inoculation campaign and a system of permits to travel, with numerous observation posts.

### *Quarantine Stations.*

Returning now to the pilgrim route itself, it is to be noted that at Khanikin on the Iraq side of the frontier, the terminus of the line from Bagdad, the Turkish authorities had for many years a quarantine station, and that on more than one occasion, at the request of the Persian Government, they undertook the inspection and disinfection of travellers returning to Persia during an epidemic in Mesopotamia. The Iraq authorities have recently built a new and up-to-date quarantine station at the same town, and in 1923, at the request of the Persian Government, agreed to inspect travellers en route for Persia during the epidemic of cholera.

On the Persian side of the frontier there is, as has been mentioned, no permanent quarantine station. The Sanitary Council has at repeated intervals during the last ten years, and indeed during the previous ten also, proposed the construction of one. The site favoured is near Kasr-i-Shirin, a village on the frontier; but the Pass of Paitaq, some 40 miles within the frontier, has its advocates. The construction of an up-to-date establishment has, however, been beyond the means of the Government, and the matter is no nearer a solution than it was. Perhaps there has been at the same time, on the part of those who have held the purse-strings, a certain hesitation to launch out into any large scheme until a greater certainty of including in it a well-trained staff exists.

There is another possible solution of the difficulty which would appear to be both practical and economical. On a straight road running between two points and presenting no particular natural features, why is it necessary to have two quarantine establishments at a distance of 18 miles from each other? Could not the temporary arrangements already described, made on occasion between the Persian authorities and those at Khanikin, become permanent and the station at that place be made to deal with the traffic in both directions? As a matter of fact this and other sanitary questions involved by a common frontier have been the subject of proposals by the Iraq sanitary authorities, which have been favourably received by their Persian opposite numbers. As soon as regular relations have been established between Persia and Iraq, the two Governments will do well to draw up a common scheme of sanitary defence in which their respective health services can take part, to the great benefit of both countries. The basin of the Shatt Arab and the Kermanshah-Bagdad road will absorb their attention at the start.

In the event of an epidemic in Iraq the Persian Government has been in the habit of stopping the pilgrim traffic. At the same time the Government of Iraq has, should the epidemic be cholera, refused to allow travellers from Persia to proceed beyond Khanikin unless provided with certificates of recent inoculation. For the present precautions of this nature appear to be the best that can be devised for the well-being of the two countries.

### *The Shrines.*

The shrines of the Imam Rezah at Meshed and of Fatimah the Immaculate at Kum attract many pilgrims. They are also favourite places of burial. Kum is more particularly a local, that is to say a Persian, place of pilgrimage. Many better-class people visit it every year. In 1919 the attention of the Sanitary Council was drawn to the dirty state of the town. In the following year the council urged that burial should not be allowed inside the town, but so far it has been found impossible to prevent the practice entirely. There is no hospital. Kum may be reached by motor-car on all the main routes converging on the town.

Meshed is visited annually by many thousands of Persians as well as by a number of Indian Shiahs, generally on their way home from Kerbela and Najef. Persian authorities give the normal permanent population as about 40,000 souls, and say that there is a floating population of pilgrims more or less in residence of about the same number. There is a local sanitary commission under the Sanitary Council. Meshed has for part of the city a piped water-supply, and is alone in this respect among Persian towns. There is a hospital of 30 beds in connexion with the shrine. Burial within the city is still carried on. During the war a good road was built from Duzdab in South-East Persia to Meshed, and it is still possible for motor traffic. Duzdab is the terminus of the railway from Quetta via Nushki. The main road from Tehran to Meshed, which carries a heavy pilgrim traffic, is not yet fit for regular motor transport. Meshed is within three days by horse-drawn vehicles of the Russian trans-Caspian railway system.

### *Public Vaccination Service.*

This vaccination service, started in Tehran in 1911, has made steady progress. It is still directed by the Sanitary Council. By 1917 the work had increased so much that it was decided to choose a director from among the members to reorganise and expand the service, and the writer was appointed and held the post until 1920. Committees, on which foreign practitioners served, were formed in the provincial capitals to superintend the local service, and ambulant vaccinators were trained and sent out to the villages. 37,000 persons were vaccinated at a cost of roughly 6d. per head. By the year March, 1924–25 the number of vaccinations had risen to 74,500, of which 52,300 were seen a second time and 47,200 returned as successful. Unfortunately it has been found impossible to appoint inspectors. Many towns and districts still have no vaccinators and send in repeated requests for them. It is entirely a question of money, and the activities of the service have of recent years been much limited by the want of it.

Up to 1922 the vaccine was obtained from France. In 1922 the newly-established Pasteur Institute at Tehran provided 35,000 doses, the first that had been made in Persia. Since then the Institute has supplied all the vaccine required, and it has been of very good quality. Arm-to-arm vaccination is still done by barbers, but reports of inoculation have not been received of recent years.

### *Hospitals.*

Although new hospitals have been opened and improvements made in existing ones since 1911, Persia is still very badly off in this respect, and foreign-supported hospitals provide most of the beds. A Government Hospital of 20 beds for women and children was opened at Tehran in 1917 under a French lady doctor. It is not equipped for major surgical work. In 1921 a military hospital of 200 beds was opened on a fine site two miles north of the city. Originally built as a hospital some 20 years before on quite sound lines, it had been used as a barracks. The staff is partly military and partly civilian, and includes a number of Russian nursing sisters. In the same year the small endowed *Vaziri hospital of 30 beds was taken over by the Government*, and the French lecturer in surgery in the medical school was put in charge. The chief civil hospital at Tehran, the "Government Hospital," of nominally 90 beds, was reorganised by British medical officers between 1919 and 1923. The British Government and the Anglo-Persian Oil Company presented a large amount of medical stores and equipment to the institution. The hospital of the American Mission (55 beds) and the dispensary of the British Legation have continued to represent foreign medical work in the capital. The Russian Hospital was closed shortly after the war.

During the past 11 years a hospital of 30 beds was opened at Meshed in connexion with the shrine, and other small hospitals at Tabriz (30 beds), Kerman, Shiraz, Enzeli, Malayer, and Shahrud. A small municipal hospital was opened at Hamadan. The needs of the provinces, however, continue to be met chiefly by the hospitals and dispensaries of the British Consulates, the Church Missionary Society, and the American Missions. The Church Missionary Society has recently opened a hospital at Shiraz and is building a women's hospital at Kerman. The American Hospital at Urumiah was unfortunately destroyed during the war; the same mission is building a hospital at Meshed at present. Finally, during recent years, the growth of the activities of the Anglo-Persian Oil Company in Southern Persia has brought the best modern medical treatment to districts and tribes where doctors did not exist, and they have not been slow to avail themselves of the benefits of well-built hospitals, X ray plants, laboratories, and dental treatment.

### *Nursing in Persia.*

The nursing of the sick presents special difficulties in a Mussulman country and has always been, and still is, a problem in Persia. Progress has, however, been made during the past 11 years through the nurses of British and American hospitals who have trained a number of girls, chiefly Armenians. Mohammedan girls were trained by the English matron of the Civil Persian Hospital at Tehran during its reorganisation, and showed great keenness and considerable capacity. The introduction of Russian sisters into the principal army hospital has been mentioned. The bulk of the nursing in Persia is, however, carried on by male orderlies of very little instruction. Midwifery has been taught in some of the foreign hospitals, and at the women's hospital at Tehran, but the old wise women still hold sway. Some of them have received elementary instruction. The village of Gulhek, where the British Legation has its summer quarters, has now a midwife of its own, a peasant woman who has received a short course of training.

The work of Persian hospitals is gravely hampered for want of funds. Special hospitals for infectious diseases and tuberculosis are badly wanted, but so are well-trained doctors and nurses.

### *Pasteur Institute.*

In 1921 the Persian Government opened a Pasteur Institute under the direction of Doctor Mesnard, of the Institut Pasteur, Paris. Laboratories were fitted up on the ground floor of the director's house and clinical examinations for practitioners and the preparation of vaccines were undertaken. Later the preparation of vaccine lymph of very excellent quality was started. The efficacy of anti-anthrax inoculation has been demonstrated by the staff on a limited scale. Serums and vaccines from Paris are distributed. At the end of 1923 rabies virus was obtained and the Institute undertook to treat cases. Rabies is rare in Persia in spite of the large number of ownerless dogs and of jackals, but the nearest places of treatment in the past had been Tiflis and, more recently, Bagdad. Instruction in bacteriology has been given to the students of the medical school.

The Institute has filled a *very big gap in medical work* at Tehran. It has, however, been badly housed and badly starved for funds. It is *capable of doing* much more important work, especially in the regions of research and of veterinary medicine. The director is to be congratulated on much good work done in the face of difficulties. Many of them will disappear when the construction (much delayed for want of funds) of the new institute with small hospital and director's house attached has been finished. The land and the water *rights* were generously given to the Government in perpetuity by H. H. Firman Firma, as well as a sum of £000.

(*To be continued.*)

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## PROGRESS OF WESTMINSTER HOSPITAL.

THERE has been a notable increase of work and activity since the reopening of the hospital. The in-patients are 30 per cent. and the out-patient attendances 35 per cent. more than in 1922. Simultaneously subscriptions have increased by 54 and donations by nearly 100 per cent.

## HEALTH CONDITIONS IN BRITISH HONDURAS.

ACCORDING to the annual report presented by Mr. C. Douglas-Jones, Colonial Secretary, the general health of the colony during 1924 was, on the whole, good. During November three cases of yellow fever, one of which proved fatal, occurred at Stann Creek. The necessary measures were taken immediately to safeguard the capital and other districts, and the area was placed under quarantine. At the request of the International Health Board, the autopsy tissues were forwarded to them for examination. As a result of expert diagnosis the Board were of opinion that the evidence in this case did not seem to be conclusive either for or against yellow fever. There can be no doubt that the policy adopted of placing the colony in quarantine, however detrimental it may have been to its interest, was the correct course. It should be possible with an efficient medical staff and competent sanitary department, with which the colony is now equipped, to devise some scheme by which, under careful observation, suspected cases of yellow fever could be reported and placed under observation without taking the drastic steps usually adopted, which have the result of seriously dislocating the business and trade of the colony—perhaps quite unnecessarily. This question is under consideration, and the Rockefeller Foundation is being consulted. The occurrence of the enteric group of diseases in Honduras is very rare. Dr. H. B. G. Newham, of the London School of Tropical Medicine, in his report on his visit *to the colony, states that he saw a very suspicious case in* a man who had lived in Belize (the capital) for many years. The Belize Hospital returns show four cases and one death during 1924. It is probable that mild cases occur in the remote settlements. There were 33 deaths from dysentery during the year. In the Belize Hospital 16 cases of amœbic dysentery and 10 cases of bacillary dysentery were treated. There was a good deal of dysentery of a bacillary type in the town of Belize during the months of September, October, and November. House-flies were not prevalent in any part of the town during the period, and, in fact, house-flies are remarkably few there at any time of the year. The rainfall was heavy at the time these cases were occurring, and many parts of the town were swampy, and the roadside drains, where such exist, were constantly full of water. Thirty deaths from malaria were certified by medical practitioners in 1924. Among the uncertified deaths 380 were ascribed to "fever," and there is little doubt that a large majority of these was due to malaria, which also caused an unusual number of deaths, mostly among young children, in the Indian villages of San Antonio, San Pedro de Columbia, and Aguacate in the Toledo district during the months of July, August, and September. The history of these cases was very closely investigated by Dr. E. I. Vaughan, of the Rockefeller Foundation, who came to the colony in connexion with the outbreak of yellow fever in Stann Creek in November. His report endorsed the opinion of the principal medical officer that these cases were undoubtedly malaria. Pulmonary tuberculosis is prevalent. Other forms of tuberculosis are not common. Very little fresh milk is consumed in the colony, and in Belize tinned milk is universally used. In the Belize Hospital during the year there were 18 cases of all forms of tuberculosis, and of these 22 died. The vital statistics show *39 deaths from pulmonary tuberculosis, all certified* by medical practitioners. Among the uncertified deaths at least 50 were due to this malady. The estimated population of the colony on Dec. 31st, 1924, was 47,183. The *birth*-rate for the year was 38·8 per 1000, and the death-rate 23·34. The highest rainfall was, as usual, at Punta Gorda in the Toledo district, which had a total of 100·09 inches, and the lowest was at Corozal, which had a total of 30·10 inches. Belize had 59 inches. The hottest days for the year were August 23rd and Sept. 4th, on which the thermometer registered 91·50° F., and the coldest day on Nov. 18th, when it registered 57°.

## THE FUNCTIONS OF AN ARCHITECT.

THE rows of exactly similar houses which are a regrettable feature of modern England are mostly the work of independent builders. Wholesale design without intelligent regard for appearance or convenience is fortunately less common than it was, for the architect is beginning to come into his own; but many people are still at a loss to know when and why they require an architect's services, and how the fullest advantage may be taken of his skill and experience. Accordingly the Royal Institute of British Architects has prepared a pamphlet which is called "an attempt to enlighten the minds of those proposing to build regarding the duties and functions of *architects, and to explain the necessity for the engagement* of competent architects in connexion with all building work." The pamphlet is successful in doing these things in a few words, and we hope that it will be widely read. It may be obtained from the Royal Institute of British Architects, 9, Conduit-street, London, W. 1.

## THE BLIND IN GLASGOW.

According to the central register of the blind kept by the Scottish Board of Health there were in Glasgow on April 1st, 1025, the latest date for which statistics are available, 1517 blind persons in the city, exclusive of 96 of school age for whose education the education authority was responsible under the Blind and Deaf Mute Children (Scotland) Act, 1890. The present numbers probably exceed this total. More than 800 of them are over 50 years of age, and in most cases are in receipt of old age pensions. Of the remainder, 120 are under training, or are in approved institutions, and 115 have applied for technical education but have not yet been admitted to institutions.

## OCULAR COMPRESSION IN PAROXYSMAL TACHYCARDIA.

In the *Bruxelles-Médical* of Jan. 10th Dr. Pierre-Noël Deschamps describes two cases of paroxysmal tachycardia in which normal rhythm was restored on repeated occasions by pressure on the eyeball. He recommends this procedure as a method of arresting attacks, and suggests that it should be used in conjunction with quinidine, which drug, when given during periods of normal rhythm, appears to diminish the frequency of the paroxysms. The prompt response to this form of reflex vagal stimulation in the two cases quoted in this article lends force to the writer's contention that this is a procedure which deserves a trial in a condition in which we know of no certain and trustworthy remedy. Some form of vagal stimulation, either direct by pressure on the nerve-trunk in the neck or reflex by the induction of vomiting, or forced respiration, will often abort an attack. The value of drug therapy in paroxysmal tachycardia is very difficult to assess, for the tendency of the attacks to occur at irregular intervals and to terminate spontaneously makes it practically impossible to provide an efficient control, and it is only those therapeutic methods which produce an immediate effect, and can be shown to produce that effect repeatedly, that can be safely accredited in the treatment of such conditions.

## WINDOLITE.

Windolite is claimed by its makers to be a light, flexible, and practically unbreakable substitute for glass, letting through the ultra-violet rays which are stopped by ordinary glass. On account of these qualities, Windolite has, we are told, been supplied in considerable quantities to sanatoria and schools. The two samples which have been submitted to us consist of rolls of wire netting of fine mesh, the interstices of which are filled with a fairly transparent preparation. The netting is made in two grades, the mesh being practically the same in the two cases but the thickness of wire is varied so as to be nearly twice as thick in one as in the other. An examination of the transparency of these samples to the light of the iron spark spectrum shows that Windolite is more transparent to ultra-violet radiation than is ordinary window glass. There is very considerable transmission of all wave-lengths up to about 2700 A°.U., and it is well known that ordinary window glass does not, as a rule, transmit radiation of such a short wave-length as 3000 A°.U. The two samples submitted showed about the same degree of transmission, but tests made upon different portions of the same sample varied to a measurable extent, probably due to some variation in the thickness of the preparation filling the interstices.

Windolite may be obtained from the makers at 179–185, Great Portland-street, London, W. 1.

## SPA TREATMENT IN THE BRITISH ISLES.

The current issue of the *Prescriber* deals with spa treatment in the British Isles. The leading article summarises the present position in regard to spa treatment of industrial rheumatism. It has been pointed out in our columns by Dr. Fortescue Fox, of the International Society of Medical Hydrology, that a particular feature of British spas is their invigorating character, and the leading article in the *Prescriber* summarises the present position in regard to the spa treatment of industrial rheumatism. This is a subject into which the International Society of Medical Hydrology is making a special inquiry and one which has also recently received prominence in consequence of the statement of Sir George Newman, the Chief Medical Officer to the Ministry of Health, that something like £2,000,000 is being spent annually in the treatment of the rheumatic group of diseases among insured persons, while the time lost to industry through such diseases amounts to 3,000,000 weeks or 60,000 years. Dr. Fortescue Fox, in dealing with the inter-relation of British spas as health centres, believes that "the time is not far distant when not the spas only, but all other centres along the coast where adequate external treatment can be given . . . . will make their own particular contributions to the prevention and cure of disease." Special articles deal with the history of Buxton, the development of F

Droitwich, and Trefriw in Carnarvonshire. Many
reproduced illustrations add to the interest of a collect
details about our British spas which is valuable for refe

## DR. TIMOTHY BRIGHT AND SHORTHAND

At the sale of Britwell Court Library at Sotheb
March 15th one of the only two known copies
Timothy Bright's book on shorthand was sold for
to the agent of Dr. Abraham Rosenbach, the well-
bibliographer, of Philadelphia. Timothy Bright's nam
recently recalled (The Lancet, Feb. 27th, p. 475)
article on Medical Inventors. He graduated in medic
Cambridge in 1579. Nine years later his book,
"Characterie, an Arte of Shorte, Swifte, and S
Writing by Character," was published in London
a dedication to Queen Elizabeth. Timothy Bright's s
consisted of 18 symbols, with four slopes for each lette
12 different ways of altering the base, so that each
could represent 18 words. It was necessary for the st
to learn by heart the signs for 537 words. The other
of Bright's book is in the Bodleian Library.

## LIVERPOOL HOSPITALS.

At the annual meeting of the Royal Southern Ho
Liverpool, on March 8th it was reported that th
had now reached the serious figure of over £26,00
department may possibly have to be closed down.
the annual meeting of the Royal Liverpool Chil
Hospital the following day it was announced that i
was falling short of expenditure by about 10 per
Both hospitals plead for increased subscriptions
corporations and large business firms. At the meet
the Children's Hospital an employee of the L.M.S. ra
speaking of the £100,000 raised last year by work
contributions, said: "The railwayman by his contrib
insures himself and his family for hospital and conval
benefits"; and there is no doubt that this expre
widely accepted view and one which vitally affect
position of all honorary members of the medical
The Children's Hospital has in view large extension at
of the main branches of the institution. At Heswa
nurses' home is being extended and new open-air
accommodating in all a further 90 patients, are in imm
prospect. At the city branch the new building, prov
further housing for nurses as well as new quarters fo
resident medical staff, is on the point of completion.

## INFECTIOUS DISEASE IN ENGLAND AND WA DURING THE WEEK ENDED MARCH 6TH, 19

*Notifications.*—The following cases of infectious di
were notified during the week:—Small-pox, 109 (last
202); scarlet fever, 1643; diphtheria, 1171; e
fever, 39; pneumonia, 1212; puerperal fever, 47; ce
spinal fever, 12; acute poliomyelitis, 5; acute
encephalitis, 1; encephalitis lethargica, 52; dysenter
ophthalmia neonatorum, 109. There were no cas
cholera, plague, or typhus fever notified during the we

The notified cases of small-pox were fewer by 93 th
the previous week. Since this return was made up a
case of small-pox, the first since May of last year, has
reported from Cambridge. Dr. A. J. Laird, medical o
of health for the borough of Cambridge, informs us
the victim was a school-girl, aged 13½ years, who had
been vaccinated. She sickened on March 5th whils
school, and the eruption appeared on March 8th. She
seen on the evening of March 9th, and removed to hos
at once. She died on the following night. There was
eruption of papules, some of which contained blood, on
soles of the feet, where there were about two dozen s
on each, and on the palms of the hands, where there
nearly a dozen spots on each. There was little else on
body or on the face. There was some hæmorrh
(subcutaneous) on one buttock, and from the nose, and
subconjunctival hæmorrhage. The patient was se
comatose from the time of admission to hospital until de
It is interesting to note that the parents, who had both
vaccinated (the mother in infancy and the father in inf
and while in the army), were not conscientious objec
Both their children, however, were unvaccinated.

A recent report of the medical officer of health for S
Shields states that among recent cases of small-pox i
district were some of confluent type, likely to
permanent disfigurement.

*Deaths.*—In the aggregate of great towns, including Lon
there were 2 (0) deaths from enteric fever, none
small-pox, 102 (40) from measles, 8 (3) from scarlet f
59 (9) from whooping-cough, 48 (13) from diphth
40 (10) from diarrhœa and enteritis under 2 years of
and 97 (12) from influenza. The figures in parent
are those for London itself. For the fifth time during
last seven weeks the deaths from measles exceed 100.
mortality from influenza is still practically stationary.